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Production of Most Grades of Paper Increases

News Print, Wrapping and Hanging, However, Show Decreases in June as Compared With May According to Reports of the American Paper and Pulp Association and Affiliated Organizations—All Grades of Pulp Except Ground Wood, Sulphate and Soda Show Decreases in June as Compared With May

The total paper production in June, according to identical mill reports to the American Paper and Pulp Association, was 557,887 tons as compared with 605,209 tons in May, and 536,913 tons in June, 1928.

All grades excepting news print, wrapping and hanging registered increases in monthly production over last year. Felts and building showed an increase of 10 per cent over June, 1928 production while uncoated book increased almost 9 per cent, paperboard 7 per cent, writing 7 per cent, bag 2 per cent, and tissue less than 1 per cent. The following grades registered production decreases in June, 1929, as against June, 1928: news print 5 per cent, wrapping 3.5 per cent, and hanging 5.4 per cent.

Shipments in June, 1929, of all grades, excepting news print, wrapping and hanging, increased over June, 1928. The total shipments of all grades increased 5 per cent above the total for June of last year.

All grades, excepting paperboard, wrapping, writing, tissue, hanging and felts and building, registered decreases in inventory at the end of June, as compared with May, 1929. As compared with June, 1928, all grades excepting paperboard and hanging showed substantial decreases in inventory. The total stock on hand for all grades increased .1 per cent over May, 1929, but was 9 per cent lower than that of June, 1928.

Identical pulp mill reports for June, 1929, showed that the total production of all grades of pulp was about 6 per cent greater than June, 1928.

There was 11 per cent more sulphate consumed in June, 1929, at the reporting mills than in June, 1928. All grades, excepting news grade sulphite, registered decreases in outside shipments as compared with June, 1928.

All grades excepting ground wood, sulphate and soda pulp, showed decreases in inventory at the end of June as compared with May, 1929. As compared with June, 1928, all grades excepting ground wood, bleached sulphite, easy bleaching sulphite and soda pulp, registered decreases in inventory.

REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF JUNE, 1929

Grade	Production Tons	Shipments Tons	Stocks on Hand End of Month—Tons
News print	113,407	114,558	24,602
Book, Uncoated	84,482	85,016	38,143
Paperboard	213,885	210,547	64,994
Wrapping	49,720	49,104	50,383
Bag	14,577	15,014	5,848
Writing	30,810	30,304	40,082
Tissue	12,295	11,993	10,340
Hanging	4,260	3,553	4,627
Felts and Building	7,384	7,251	1,392
Other Grades	27,067	27,253	16,712
Total—All Grades	557,887	554,593	257,123

REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF JUNE, 1929

Grade	Production Tons	Used During Month Tons	Shipped During Month Tons	Stocks on Hand End of Month Tons
Ground wood	92,895	86,721	2,114	120,386
Sulphite News Grade	38,372	35,009	3,579	7,125
Sulphite Bleached	24,270	22,308	2,008	2,757
Sulphite Easy Bleaching	3,228	3,183	113	488
Sulphite Mitscherlich	6,753	5,864	1,071	620
Sulphate Pulp	29,928	23,908	5,260	4,546
Soda Pulp	25,209	16,128	8,356	4,718
Pulp—Other Grades	36		75	9
Total—All Grades	220,691	193,121	22,576	140,649

To Let Contracts for Sulphite Mill at Everett

PORTLAND, Ore., August 23, 1929.—Ossian Anderson, president of the Puget Sound Pulp and Timber company, which recently announced plans for a pulp and paper project at Everett, Wn., to cost approximately $3,000,000 when completed, has announce that the financial arrangements have now been concluded and a contract will be let shortly for a 150-ton bleached sulphite pulp mill with the latest modern equipment.

Officers of the company besides the president have been elected as follows: H. W. Bunker, of Coos Bay Lumber company and former Seattle banker, is chairman of the board of directors. P. F. Knight, vice-president of the Mutual Lumber company is vice-president; William Morrison, vice-president of the Morrison Mill company, vice-president; H. R. Lawton, vice-president Peirce Fair & Co., secretary.

Other members of the directorate include U. M. Dickey, president of the Consolidated Dairy Products company; O. M. Green, president Olympia National Bank; A. M. Robbins, president Clark-Nickerson Lumber company; Peter E. Schmidt, president Schmidt Estate Co., and W. N. Winter of the Pacific Coast Telephone company.

Hardy Ferguson of New York, is consulting engineer of the new project of the Puget Sound company.

Union Bag Gets Pulp From Coast

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., August 26, 1929.—Two large boat loads of pulp from the new pulp mill of the Union Bag and Paper Power Company in the State of Washington docked at the terminal here during the past week and a large force of workmen are now busy in unloading and transporting the product to the local plant of the Union Bag and Paper Company. Several thousand tons of pulp comprised the entire shipment and others of a similar nature will follow in the near future.

Pennsylvania Paper Manufacturers Optimistic

Rush of Orders Anticipated for Standard Grades of Paper During Closing Months of Year—Small Lot Purchases Comprise Greater Volume of Business Transacted of Late—Wholesalers of Fine Paper Have Been Active—Quotations Rule Steady and Unchanged

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 26, 1929.—Dealers who have been urging large consumers of paper to place their orders for Fall stocking at this time are not able to stir up much responsiveness to their pleas. Orders are obtained with difficulty and in small lots. One factor which the trade is assured of is that prices are to be steady this Fall, for there have been no breaks in values so far this summer. In past years there always has been some break in values to stir up summer orders but this year no such phase of business disturbed the market and little likelihood exists that prices will recede in the more active autumn business season.

Mill buying is better, although there is much room for improvement. Viewing the situation in the local territory, the manufacturers are optimistic and look for a rush of buying in September. While dealers are ordering sparsely from the mills as individuals, there is greater volume of orders placed in small lot purchases. This is particularly true of fine papers where the distributors have not been as active as the wholesalers, who have been fairly busy all summer. Both coated and dull finished book papers have been more active.

With the return of cooler days there was a falling off in demand of the seasonally active grades used for sanitary purposes in the hot weather. Competition in these products did not break prices as demand was maintained in such volume that prices were firm. Kraft markets are steady. While orders are few and consumers show hesitancy in stocking for fall, values hold at springtime levels for both northern and southern made krafts.

Following a spurt of buying in the paper stock market in the preceding week there was a slower trend to the demand for raw materials. The cheaper grades were less active but demand for the better grades of shaving, book papers and writing stock held steady and consumed all available supplies. Rags were sluggish, except for wipers and roofing stock, which moved in fair volume.

Meetings of Trade Association to Resume

The customary monthly meetings of the Philadelphia Paper Trade Association, the Philadelphia Paper and Cordage Association, and the Wholesale Waste Merchants Association, will be resumed after Labor Day. The semi-monthly session of the Fine Paper Section will be held at the Bourse in mid September while the Wrapping Paper Division of the Philadelphia Paper Trade Association will be resumed on Wednesday of the following week. The Philadelphia Paper and Cordage Association will meet in its usual Third Friday session on September 20 at the Adelphia Hotel. The Wholesale Waste Merchants group will meet at the Hotel Lorraine in a quarterly session at a date not yet designated during the coming month.

Wholesale Waste Merchants Hold Outing

While Jupiter Pluvius did his level best to mar the outing of the wholesale waste merchants and the downpour of rain made it impossible to enjoy the outdoor program as arranged by the committee on entertainment there nevertheless was a brighter side to the picnic of the Philadelphia Wholesale Waste Merchants Association held last Wednesday at Kugler's Mohican Club on the Delaware in the fellowship of the meeting staged indoors. In the comfort of the spacious Mohican club house the day was devoted to many pastimes such as might be enjoyed at any stag party. Checkers, chess, card games, dominoes and pool made up the program. In the evening the wholesalers of paper stock and other waste materials enjoyed an unusually good beefsteak dinner served with extra zest and taste by the club proprietors to offset the rainy day. There were 35 members present and around the festive board they heard their president, Thomas A. Kenny, of the International Trading Company, greet them with added warmth and hearty words of welcome. Secretary William J. McGarity, head of the Penn Paper and Stock Company, then extended the hospitality of the organization and thanked the arrangements committee for the timely entertainment. Those who were on the arrangements committee were William L. Simmons, Jr., Thomas F. Simmons Sons Company, chairman; William J. McGarity, Jr., of the Penn Paper and Stock Company, and George French, Philadelphia manager of Castle & Overton.

Bag and Paper Jobbers Meet in Pittsburgh

Members of the Philadelphia trade affiliated with the Pittsburgh Paper and Bag Jobbers Association met their brethren of the Eastern Pennsylvania industry in a conference held last Thursday at the Hotel Roosevelt, when trade matter of paramount importance to the dealers were discussed in an open forum way, following a dinner in the evening. There was a full attendance quota with the nine firms represented in this branch of the industry present.

Hammermill Sales Convention

Distributors of Hammermill papers linked with the Philadelphia industry journeyed to Erie, Pa., last week to participate in the annual sales convention. The annual gathering occupied the entire week and consisted of sales talks, advertising programs, and other helpful promotion plans laid down for the benefit of those who distribute and represent the Hammermill Paper Company throughout the country. Those from the Quaker City trade who are distributors of the Hammermill Papers and who attended the convention and joined in its business sessions and social features were President Edward McCorkendale and Vice President A. B. Sherrill, of Riegel & Co., Inc.; President George W. Ward and Secretary William A. Hentz, of the D. L. Ward Company; President Thomas R. Fort, Jr., of the Thomas W. Price Company, and Simon Walter, president of S. Walter, Inc., of Philadelphia, who accompanied B. R. Moore, manager of the York, Pa., branch of S. Walter, Inc., known as the Andrews Paper Division of that corporation.

G. E. Barnes Returns From Trip

G. E. Barnes, secretary of the Philadelphia Paper Trade Association, and of S. Walter, Inc., who has been touring through the Great Lakes region, has returned to his desk and is preparing for resumption of the fall activities of the Paper Trade Association in the coming month. Upon the return of President Simon Walter from the Hammermill convention in Erie next week announcement will be made of the date of the meeting of the Paper Trade Association at the Bourse, which will be some time after Labor Day.

E-Z Opener Bag Co. in Freight Compromise

Dealers in the E-Z Opener bags made under the direction of the E-Z Opener Bag Company, of Albany, N. Y., in the Quaker City, were informed in the past week of the plans of the company to arrange suitable freightage expenses that will enable the dealers to handle these bags with profitable returns. The company announced the adjustment of its shipping rates in line with the needs of the distributors so that long distance shipments will not be heavier than those in the nearby markets for similar products. The E-Z Bag Company, whose headquarters are located in the New York State capital, is a subsidiary of the Gulf States Paper

Corporation, which operates mills at Tuscaloosa, Ala., and which recently introduced a new line of krafts known as the Tuscaloosa krafts to the trade. These krafts were introduced here by the traveling representative, Mr. Charles, who made the rounds of the dealers last week with the newly offered freight adjustment plans of shipments on these products.

J. H. Wantling Undergoes Operation

Philadelphia trade associates and friends of J. H. Wantling, Quaker City branch manager of the Continental Paper and Bag Corporation, with offices in the Land Title Building, were informed during the week of his confinement to the Polyclinic Hospital in New York, where he is recovering from an operation for appendicitis. He entered the hospital in New York last week and underwent the operation on Friday after a prolonged illness from that ailment. Word received here states that he is gaining after reports of several adhesions that necessitated extra attention by the surgeon. Philadelphia managership of the Continental Corporation was conferred on Mr. Wantling last year upon the death of his predecessor, Lewis T. Condon, and he has been representing the kraft paper, southern division, of that company, since taking over the management.

To Develop Oswego Harbor

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., August 26, 1929.—An appropriation with which to begin the development of the Oswego Harbor which has been advocated by the St. Regis Paper Company interests is expected at the next session of Congress, according to a statement by Representative Francis Culkin in a letter addressed to the Chamber of Commerce of this city. The contents of the letter was as follows:

"Oswego has been grievously hurt by removal of the railroad shops and certain textile plants. The industrial development of the paper manufacturing firms owned by the Carlisle interests, however, has more than made up for these most unfortunate losses so that at the present time we are better than holding our own. May I say that the outlook for the development of our port is excellent. I may be pardoned if I state that I have worked diligently to get the matter of the necessity of a development here before the federal authorities. I very much hope that at the regular session of Congress with the complete cooperation of everyone concerned to get an appropriation for the development of our harbor."

In recent years the Carlisle interests have been active in Oswego holding the major portion of the stock in the Peoples Gas and Electric Company, which owns two water power developments on the Oswego River as a part of the Northeastern Power Corporation system. The Oswego Board Corporation is also controlled by the firm in the largest plant in the district turning out fiber insulating lumber. The largest mill of the Taggart Corporation is also located in Oswego and arrangements are now being made for the removal of the machinery division of the Bates Valve Bag Corporation from Chicago to this city. In addition the Carlisle interests have sponsored the Oswego Rayon Corporation which has been successfully manufacturing rayon garments for a number of years.

Kieckhefer to Establish New Finishing Plants

APPLETON, Wis., August 26, 1929.—Two new finishing plants are about to be established by the Kieckhefer Container Company, of Milwaukee, Wis., according to announcement of John Kieckhefer, president. One of these will be at Houston, Tex., and the other at New Orleans. They will serve the needs of the company's customers in the Southwest.

These plants carry out the policy of the company to establish local service plants. Container material is shipped to the seaboard cities by boat from the mills near Philadelphia, and is then completed at the finishing plants. The interior plants are supplied from the company's mills at Three Rivers and White Pigeon, Mich. Finishing plants are now in operation at Oakland, Los Angeles, Seattle and Honolulu.

New Pulp Mill for Oregon

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., August 23, 1929.—Announcement was made August 20 of a new pulp and paper project to be developed at Gardiner, on the Umpqua River, in connection with an old lumber mill owned by the Gardiner Lumber Company which has been idle several years. The first statement came through lumber circles where it was announced that 800,000,000 feet of standing timber had been acquired along with the old Gardiner mill, representing an investment of approximately $3,000,000. This report has been authenticated by W. L. Nederhoed, vice-president, who has offices at the company's headquarters in the Bedell Building.

The Umpqua Pulp and Paper Company will take over the townsite of Gardiner, including residences, post-office merchandise store, hospital, telephone office and many smaller activities, and when the new enterprise is completed will employ about 375 men. The mill is to be of 50,000-foot capacity.

The connection of the sawmill with the pulp plant, Mr. Nederhoed states, will make it possible to log the land clean. The fir will be prepared for export and the spruce and hemlock used for pulp. Hog fuel for operation of the pulp and paper mill will also be derived from the refuse of the lumber plant.

Mr. Nederhoed has been connected for about 15 years with the import and export trade at Tokio, Japan, where he was specially interested in pulp and paper. Through these former trade connections he expects to build up an export trade with finished lumber from the mill.

The sawmill will start within ninety days and at first will cut principally lumber to be used in construction of the pulp mill. Joe Kaster, expert pulp and paper man of the Northwest, will be in charge of the building and the operation of the pulp plant. This will be a 100-ton sulphate mill. It is hoped to have it ready for operation in November, 1930. More than 50 acres have been set aside on the property for the pulp and paper enterprise, although this will not all be used at first.

Water rights on the Umpqua and Smith Rivers and on Mill Creek and an outlet on Loon Lake all go with the newly acquired property, as well as water rights from Takenvitch Lake, three miles north of the town, for fresh water supply. Percy A. Cupper will be the engineer in charge of water rights.

Japan will also be looked to as a direct market for the pulp mill as well as the lumber outlet. The fir will be cut in Japanese squares, the popular method of shipping lumber to that country from this territory. The fact that the government is working on construction of a jetty at the mouth of the Umpqua River, with a jetty on the north bank practically complete, is an advantage which will probably permit large ocean-going steamers to enter the harbor at Gardiner within three years.

Luzerne Mill To Start Soon

[FROM OUR REGULAR CORRESPONDENT]

LUZERNE, N. Y., August 26, 1929.—The mill of the Luzerne Paper Corporation is still idle although receivers for the defunct company have notified former employees that all departments will soon be again in full operation under their management. It was also announced by the new officials that the pay due the employees when the mill shut down will be paid within the next four weeks. About 150 hands are employed at the plant which it is expected will be running full blast by September 1. The receivers are now engaged in reorganizing the business affairs of the firm and as soon as this work is completed proper attention will be given to the reopening of the big plant.

To Build Straw Paper Plant at Palouse

CASHMERE, Wash., August 23, 1929.—Directors of the Palouse Pulp and Paper Company have decided to build the new straw paper plant on the old Botlatch Lumber company property at Palouse. There has been enough stock sold to warrant erecting the mill and plans are being perfected to that end.

Canada Speeds Up Forest Resources Inventory

Knowledge of Nature and Extent of Timber Used In Various Industries Essential for Development of Stable Forest Policies—Demand from the United States for Canadian Sulphate Pulp, Used for Making Wrapping Paper, Decreases—News of the Industry

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 26, 1929.—More active measures will be taken by the Dominion forestry department and of the several provinces to speed up the inventory of the forestry resources of the country, it was decided at a representative meeting in Ottawa a few days ago. Reports of the various administrations showed that in all some 382,000 square miles had been covered by forestry surveys of some kind, about 164,000 square miles by stock taking or more intensive surveys, and 218,000 square miles by reconnaisance surveys. Since the total forests area is estimated to exceed 1,500,000 square miles, it was thought that there was rigid need for speeding up the surveys, for a knowledge of the nature and extent of the forest resources of the country is essential for stable forest policies. The conference agreed that each authority should cooperate in conducting a national forest inventory with the objective of covering at least the accessible areas within five years. It was agreed that the Federal Forest Service act as a clearing house for information concerning the forest resources of the Dominion as a whole, and that the Provincial services should furnish periodically reports on the surveys as completed. The necessity of classifying the land as to its best use and permanently dedicating essentially forest land to the growing of timber crops on a sustained yield basis was unanimously approved. It was pointed out that the usefulness of an inventory of this kind is primarily in relation to the control of depletion, and while appreciating the excellent services being performed by the Bureau of Statistics and the Department of National Revenue in furnishing data in regard to the timber used in the industries and exported, it was felt that this cooperation could be extended to give greater details as to the species and province of origin of the timber cut. It was urged also that more data be furnished as to the quantities and kinds of timber destroyed by fire and that an attempt be made to estimate annually the loss due to insects and fungus diseases.

Woodpulp Export Figures are Down

The latest figures of exports of Canadian woodpulp show decreases as compared with the corresponding periods of last year and several previous years. So far as unbleached sulphite pulp or mechanical or ground wood is concerned, this situation is easily explainable for these materials were sent over to the United States chiefly to supplement supplies used by news print mills there owing to the rapid exhaustion of domestic supplies of pulpwood. As has been pointed out before United States production of news print is falling off steadily, the 1929 total being down as compared with that of 1928 and last year being lower than the previous year. Hence a smaller amount of Canadian unbleached sulphite and ground wood pulps is required by United States mills than was formerly the case. This does not apply, however, to the position of sulphate or kraft pulp and bleached sulphite pulp. The former is used for wrapping paper and other coarser lines, while bleached sulphite enters into the production of fine papers. The news print situation, however, in one way in this respect is accountable for the decrease in the exports from Canada of these lines, as in the case of a number of news print mills, the decision to cease manufacturing this grade of paper has been followed by the change over from news print to book and writing papers, manila, kraft, catalog and other lines. These mills would, in a good many cases, use their pulpwood supplies for these grades of paper. The use of Southern pine, however, in the United States has replaced a good deal of the spruce in the manufacture of pulp used for making wrapping papers, and this probably more than the other, is the chief reason for the reduction in the demand of the United States for Canadian sulphate pulp.

Notes and Jottings of the Trade

John Bourke, of the resident engineer's office, at Espanola, Ont., has left to accept the position of resident engineer at the Thunder Bay Paper Company, of which W. J. Hussey is manager. Mr. Bourke went to the Spanish River plant at Espanola soon after the war, he having been through the war with the rank of major, and was engineer while the town was under construction. Later he was transferred to the mill engineer's office. He had nine years with the company.

Until such time as J. J. Herb, president and general manager of the Westminster Paper Company, Ltd., Westminster, B. C., has consulted with Eastern shareholders of the company, no official decision will be announced as to whether the concern will rebuild in New Westminster. It is generally understood that a new plant will replace the one burned and it is known that the company has been considering plans and costs but no forecast as to what will finally be agreed upon will be released until the head of the firm returns from the east where he is now meeting the shareholders. The company, which manufactured light weight papers, chiefly, was enjoying good business up to the time of the fire and was operating 24 hours a day. A shipment of 100 tons of paper was being prepared at the time of the fire.

"Presenting Paper," being sent out monthly by Provincial Paper, Ltd., head office Toronto, has a reproduction on its cover page of a northland scene and other illustrations showing the fine printing qualities of Oxford Book, one of the firm's leading lines, and its adaptability for straight black and white reproductions as well as color work.

Many of the Toronto paper wholesalers, who are members of the Toronto Club of Printing House Craftsmen, attended the annual convention of the International Association at the Royal York Hotel, Toronto, last week, at which there was a registration of about 800.

An extensive building program is being carried out at Kapuskasing, Ont., by the Spruce Falls Pulp and Paper Corporation, who are spending over $200,000 in buildings. Fifteen additional houses are being erected which will be sold to married employees. Each house will cost $6,000. The company is also building a three-story staff house to provide greater accommodation for the single men employed. There is also going to be addition to the present service building. Contracts for the erection of the buildings have been given to Hill-Clarke-Francis, New Liskeard.

William H. Lyons, son of the Hon. James Lyons, M.P.P., Sault Ste. Marie, Ont., and former Minister of Lands and Forests for Ontario, was married recently to Miss Marguarite Morrow, of Sault Ste. Marie. W. H. Lyons, who is a pilot in the Ontario Provincial Forestry Air Patrol, left his aeroplane in Orient Bay while he went to Sault Ste. Marie and after the ceremony returned immediately with his bride to take up his hazardous work in connection with the patrol of the district.

A party of Ontario and Quebec editors touring Northern Ontario recently inspected the Iroquois Falls plant of the Abitibi Power and Paper Company, following which they were entertained at luncheon by the company.

B. B. Macquire of the sales office of Provincial Paper, Ltd., Toronto, is spending his vacation in Muskoka.

The Laurentide Division of the Canada Power and Paper Company intend operating in the Upper Ottawa district this season and

it is estimated that the company will cut from 26,000,000 to 30,000,000 feet of lumber and pulpwood. Employment both in the woods and the sawmills will be given to approximately 300 men, and will mean quite a boom for business in and around Pembroke, Ont. The mills were not operated last season, the first since the control of the property had passed from the W. C. Edwards Company to the Canada Power and Paper Company. It is stated that the Hawkesbury Lumber Company, at Hawkesbury, will not cut any wood this season as this company also has been taken over by the power and paper company. The plans of the latter company in regard to operations in that area have not been definitely stated.

Plans have been prepared for an addition to the Hamilton, Ont., plant of E. Pullan, Ltd., rag and paper stock, Toronto. They call for an addition of mill and brick construction, three stories, 39x48, structure to constitute a separate unit.

Swedish Pulp Mills Merge

Formation of a holding company to take over majority control of ten leading sawmill and pulp mill concerns in Northern Sweden by the Kreuger & Toll Company and the Svenska Handelsbanken has been announced. Assets involved in the deal aggregate $75,000,000.

This new combination will represent the largest wood industry concern yet formed in Sweden and will control approximately 450,000 tons of Sweden's annual production of wood pulp and 140,000 standards of sawn wood with a combined export value of approximately $30,000,000.

Companies included in the combination are all old established enterprises largely centered around Sundsvall, the chief timber district of Sweden. In this district also are located the waterfalls owned by the Hammarforsens Power Company, which is controlled by the Kreuger & Toll Company and which will also enter the consolidation. The new pulp concern will own 4,000,000 acres of land in the best timber district of Sweden.

In announcing the formation of the holding company the Kreuger & Toll Company made the following statement in a cable to Lee, Higginson & Co., bankers, New York:

"The companies are at present producing income at a very satisfactory rate, but it is expected that the income can be greatly increased through the consolidation which has taken place. All of the shares in the new company will be taken over by Kreuger & Toll and the whole transaction may be considered as part of the policy of this company to make investments in large industrial enterprises of different nature in order to make the basis for its expansion as broad as possible."

German Paper and Pulp Mills Invest Abroad

Shortage of pulpwood is believed to have persuaded the two largest pulp mills in Germany to invest in neighboring countries where this raw material is more readily available, according to a report to the Department of Commerce from Trade Commissioner Daugherty, Berlin.

The Zellstof Waldoof enterprise is sharing with British interests in the erection of a large paper and pulp mill at Kexholm, Finland. The Zellstof Aschaffenburger is doing likewise, investing in about 60 per cent control of Aktidngesellschaft fuer Zellstoff- und Papierfabrikanten in Memel, an enterprise capitalized at about 6,200,000 marks. The productive capacity of the latter, with its Memel subsidiary, is estimated at 230,000 to 250,000 tons of chemical pulp and 50,000 to 60,000 tons of paper.

The 1928 output of the combine is given as 180,000 to 200,000 tons of pulp and 40,000 to 50,000 tons of paper, with a probable value of 60,000,000 to 70,000,000 marks. It is believed that the share acquisition of the Memel mill by Aschaffenburg involved the turnover of stock owned by the Albert family, controlling the Albert Chemical Works. Aschaffenburg owned the Memel mill before the war, but the latter became independent after the peace settlement.

News of the Boston Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 26, 1929.—The Arnold-Roberts Company is adding three new colors, Emerald, Tangerine and Gold, to their Castilian Cover, a paper with the look and feel of rich Spanish leather. Samples are being sent out to the trade. This paper is made by the A. M. Collins Manufacturing Company, Philadelphia.

The Globe Paper Company, has taken over the New England agency for Millbrook Bond, made by the Keith Paper Company, Turners Falls, Mass.

Carter Rice & Co. Corp. is preparing an important price revision, effective September 1, on Dejonge Coated papers, affecting both warehouse sales and direct mill shipments.

The S. D. Warren Company has leased for a long term the entire tenth floor, consisting of 17,000 square feet, of the Public Service Building, 89 Broad street, for its executive offices and will begin occupation in October.

C. A. Esty, managing director, Ashley Crowell, merchandising manager, and Frank Winter, sales manager, of the Boston office of Carter Rice & Co. Corp., and Graham Blandy, 2d, manager of the Worcester Division of that company, attended the annual convention of the Hammermill Paper Company, Erie, Pa., August 21 and 22.

T. M. Dix, of the Spaulding & Tewksbury Co., has returned from a business trip to Maine and Canada.

Harold A. Allen, vice president of the Pratt Paper Company, is away on a vacation at the camp of the Appalachian Club, Coles River, N. H.

Edward D. Bement, manager of the white paper department of Carter Rice & Co. Corp., is at Wing's Neck, Pocasset, Cape Cod, until after Labor Day.

Matthew O. Byrne, treasurer of Whitney Bros., has returned from a two weeks vacation at Buzzard's Bay, Mass.

Charles T. Dole, vice president and manager of sales of the Champion-International Co., Lawrence, Mass., recently went to England to join the members of his family, who have been there for two months.

Arthur C. Hall, treasurer of John Carter & Co., Inc., is at Connecticut Lakes, N. H., for another vacation.

On acocunt of pressure of other business, Arthur V. Howland, vice president of the Tileston & Hollingsworth, has resigned the chairmanship of the Ways and Means Committee of the Massachusetts Bay Tercentenary.

William N. Stetson, Jr., who has been passing his vacation at Ogunquit Me., attended the Hammermill meeting at Erie, Pa.

Walter Temple, salesman for the Globe Paper Company, has returned from a vacation in Maine. Joseph Wenning, salesman for the same company, is passing his vacation on Cape Cod, Mass.

James Saunders, shipper for Spaulding & Tewsbury Co., is passing his vacation at his camp at Silver Lake, Mass.

Thomas Compton Walsh, sales manager for Hollingsworth & Vose, who is passing his vacation at Camp Tohocowa, near South Weymouth, Mass., will return after Labor Day.

H. R. Lewis, superintendent of the West Gorton, Mass., factory of the Hollingsworth Company, is in Europe, but is expected to return next month. Aubrey K. Nicholson is acting as superintendent during Mr. Lewis's absence.

Thomas C. Walsh recently gave an outing to the numerous clerks of the sales department of the Hollingsworth & Vose Company, at Camp Tohocowa. The party first visited Mr. Walsh's new residence at South Weymouth. The program included golf, swimming, boating, supper and dancing.

Paper Index Number for July

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 28, 1929.—July wholesale price index number for the paper and pulp industry was 88.2 compared with 88.2 for June and 89.2 for July of last year taking 1926 at 100 according to the Bureau of Labor Statistics, Department of Labor.

R. O. Sweezey Elected Head of Beauharnois Co.

Well Known Consulting Engineer, Specializing In Water Powers and Pulp and Paper Projects, Becomes One of Leading Power Magnates of Dominion By Appointment to Post of President of Big Hydro-Electric Enterprise, In Which He Has Been Prime Mover

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 26, 1929.—By his appointment to the position of president of the Beauharnois Light, Heat and Power Company, Robert O. Sweezey, long a prominent figure in connection with the pulp and paper industry in Canada, becomes one of the power magnates of the Dominion. The project, in which he is the prime mover, is one of the biggest hydro-electric enterprises ever undertaken, for while the initial development calls for the production of 200,000 h.p. by the autumn of 1932, nothing less than the development of the full power of the St. Lawrence River, estimated at around 2,000,000 h.p., is the final goal of the vast enterprise.

By profession Mr. Sweezey is a consulting engineer specializing in water powers, pulp and paper projects, timber lands and financial reports. He was born in 1883 at Three Rivers, Que., that center of pulp and paper enterprise. Graduating from Queen's University, Kingston, Ont., with the degree of B.Sc., he has had a varied business career. He explored the economic resources and timber lands of Northern Ontario and Quebec and other parts of Canada; became a lumberman and timber limit operator; was with the Transcontinental Railway on location and construction work; and later acted as consulting engineer for various banking institutions, investment houses, and public corporations. He was on the staff of the Royal Military College at Kingston from 1914 to 1916, with the rank of field engineering professor. It was he who initiated the Beauharnois project. He interested Frank P. Jones, former president of the Canada Cement Company, in the scheme, Mr. Jones taking the position of president of the syndicate that obtained government authorization of the scheme. With the retirement of Mr. Jones, owing to a difference of opinion among the members of the syndicate regarding the financing operations, Mr. Sweezey has accepted the major role.

As already intimated, the site for this development is between Lake St. Francis and Lake St. Louis, some 25 miles west of Montreal. Construction work has just been started. Steam shovels are at work removing the turf on the site of the 13-mile canal to be constructed between the two lakes. Next spring water will be admitted to the broad shallow ditch being dug by the steam shovels and then immense hydraulic dredges will be put into operation. In another month or two stock in the undertaking is to be put on the market. Meanwhile a new company known as the Beauharnois Power Corporation is being formed. This organization will own all the shares and all the securities of a group of subsidiaries including the Beauharnois L. H. & P., Beauharnois Construction Company, Beauharnois Land Company, and the Beauharnois Transmission Company. These subsidiaries will be private companies only. They have or are being incorporated merely to segregate the various activities of the organization. Publicly the company will be known by the name of the parent organization only.

Paper Industry Expanding in B. C.

With conditions in the news print industry showing an unmistakable turn for the better, pulp and paper companies on the Pacific Coast are drafting or actually carrying out plans for large scale expansion.

A dispatch from Vancouver states that while rumors are still afloat to the effect that International Paper Company is about to launch a 1,000 ton mill in British Columbia, there appears to be little more foundation for them than that the company has taken an option on the Beaver Cove holdings of the Canadian Forest Products, Ltd., financed by International Harvester Company. It would seem a logical development, however, for International Paper to tie up with the coast eventually.

Powell River Company, in the event of its acquiring power rights at Lois River, may be expected to go ahead with construction that will result in doubling its mill's present capacity. This would give the province its first 1,000 ton news print mill.

Pacific Mills, Ltd., Canadian subsidiary of Crown Willamette Pulp and Paper Company and the second largest news print producer in British Columbia, is going ahead with a $1,500,000 program for the reconstruction of some of its buildings at Ocean Falls and the building and equipment of a standby power station. This power station is expected to prevent the repetition of the water shortage which this year resulted in the tie-up of three paper machines for five months.

Rebuilding of Vancouver Kraft Company's mills at Port Mellon, Howe Sound, is also proceeding at a cost of approximately $1,000,000. New wharves, boiler rooms and other units are being built. The company is controlled by the Leadbetter interests which own several pulp mills in the Pacific Northwestern cities.

New Match Company at Hull

When the E. B. Eddy Company, at Hull, Que., was taken over by new interests, the company's large plant for the manufacture of matches was sold to the World Match Company and moved to Bertbierville, Que. This was a great disappointment to the people of Hull, and negotiations were started with a view to the establishment of another match factory to take its place. A company known as the Hull Match Company was formed, and it has just been announced that this company has awarded to A. F. Byers & Company, of Montreal, the contract for the construction of its plant. The work of excavation was started on Wednesday last, and the event was celebrated by a regular gala day in Hull.

Canada Power and Wayagamack

Newspapers here speak with something like assurance about the possibility that Canada Power and Paper Company may shortly take over control of the Wayagamack Pulp and Paper Company, of Three Rivers, Que., and it is conceded that, with its output of kraft and news print paper, Wayagamack would be a welcome addition to the Canada Power fold. If Canada Power took over Wayagamack it would not only secure extensive timber limits in the St. Maurice and Portneuf River districts, from which pulp wood could be secured for its own mills, but also would secure through the kraft manufacturing unit, a greater diversity of output and consequent stabilizing of earnings.

Since the receipt of $10,800,000 in cash and a large block of stock from Shawinigan, when that company took over its holdings in Laurentide Power, Canada Power has been in an exceptionally strong liquid position. It is recognized that the management will take steps to further extend the operations of the corporation. Purchase of Wayagamack appears to be a logical move.

Mersey Paper Co. Financing

It is stated here that the Royal Securities Corporation of Montreal will likely undertake the financing of the Mersey Paper Company some time this fall. That the financing will be expensive is apparent from the fact that the agreement entered into by the Nova Scotia government and Royal Securities involves a capital expenditure of $12,000,000 in the erection of the mill and $3,000,000 on the part of the government in the development of certain hydro power which is to be provided the pulp mill on a fixed cost basis.

Meanwhile the construction of the plant at Liverpool, Nova Scotia, is proceeding on schedule time and it is anticipated that

the mill will be ready for operation early this fall with an initial production of 300 tons of news print per day.

New Type Steamer Ordered

With the continued development of Canada's pulp and paper trade and the resultant need for effecting economies in production and transportation, a new and novel type of steamer has been designed for the carriage of news print from Liverpool, N. S., to ports along the Atlantic seaboard of Canada and the United States. The vessel has been ordered by the Royal Securities Corporation, Ltd., for the Mersey Paper Company, Ltd., whose plant at Liverpool should be completed by the end of this year. The naval architect for this craft is Walter Lambert, of Montreal, who has just returned from England, where the contract was placed with Earl's Shipbuilding and Engineering Company, Ltd., of Hull.

John V. Angus, representative in England of the Montreal Engineering Company, Ltd.—a subsidiary of the Royal Securities Corp.—received the tenders and is superintending the ship's construction. The new vessel will have a capacity for 4,300 tons of paper.

E. J. Feeney Killed by Electricity

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., August 26, 1929.—Losing his balance while at work this week in the pulp department of the International Paper Company at Corinth, Edward J. Feeney, superintendent of the electrical department, struck his hand against a contact point on a newly installed generator and was instantly electrocuted as 10,000 volts of electricity passed through his body. Dr. Lewis A. Parmenter, plant physician, was summoned and immediately directed attempts at artificial respiration until arrival of a pulmotor from the general offices. Resuscitation efforts were continued for three hours, finally being abandoned when the doctor pronounced life extinct.

An investigation following the fatal accident revealed that a new generator for operation of crushing machines was being installed in the pulp department under the supervision of Mr. Feeney. A number of employees were aiding him in the installation work. After the generator had been installed Mr. Feeney directed that a test be made and it was just a few moments after the current had been turned on for the test operation that the superintendent fell against the generator. An examination of the body disclosed that the first firgers and thumb on the right hand were burned badly while bruises were also found on the forehead and one side of the body.

For a number of years he had been active in educational affairs at Corinth as a member of the board of education besides being connected with various fraternal organizations at that place. He is survived by a wife, one daughter, and a brother.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 28, 1929.—The Government Printing Office has received the following bids for 35,000 pounds of 28 x 34, 102., pink sulphite bond paper; Aetna Paper Company, at 7.99 cents per pound; R. P. Andrews Paper Company, 8.46 cents; Old Dominion Paper Company, 8.49 cents; Whitaker Paper Company, 7.84, 8.09 and 8.34 cents; Barton, Duer & Koch Paper Company, 7.75 cents; Stanford Paper Company, 7.97 cents; Reese & Reese, Inc., 8.375 cents; Virginia Paper Company, 9.72 cents; Walker Goulard Plehn Company, 7.85 and 8.1 cents; and George A. Whiting Paper Company, 10.1 cents.

National Paper Trade To Meet Oct. 7-9

The fall convention of the National Paper Trade Association will be held October 7 to 9 at the Congress Hotel, Chicago. Frank Floyd, executive secretary announces that the officers are preparing an interesting and profitable program for the several meetings held during the convention and that members will be sure to benefit by attendance at that time.

Brotherhood Nominations Closed

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., August 26, 1929.—Nominations for the several executive posts in the International Brotherhood of Papermakers have been closed and indications are that a spirited fight will take place when the ballots are cast during the first two weeks in October. Among those seeking the presidency are William R. Smith, Jeremiah T. Carey and Matthew T. Burns There will probably also be a fight for the office of treasurer as Archie Hook, of Chicago, is being opposed by John H. Noonan, of Glens Falls, with each man having been nominated by about the same number of locals. William Bilson, of Niagara Falls, was nominated by one local but will probably withdraw. Of the nineteen locals that placed the name of Mr. Burns in nomination for the presidency about one-half are located in Canada. Included in this group are the locals at Holyoke, Troy and Niagara Falls.

While G. B. Steenburg, of Deferiet, opposes Arthur Huggins, of Holyoke, for the office of secretary the chances are that Mr. Huggins will easily win as a majority of the locals are understood to favor him. Mr. Steenburg is the nominee of only two locals. David S. Larner, of Tonawanda, has no opposition for the office of auditor. Although John W. Bailey, of Holyoke, was nominated for the office of first vice president, he has declined and this leaves the field open to Frank P. Barry, the incumbent. For the office of second vice president, George J. Schneider, of Appleton, Wis., will probably win out in view of the fact that he was nominated by all locals with the exception of one at Iroquois Falls, which selected Charles Murtaugh, of that place. Joseph Addy, of Troy, has little or no opposition for the office of third vice president, although Arthur D'Aoust, of Hull, P. Q., has been nominated by one local. A. F. McLeod will probably win out for the office of fourth vice president although Oscar Benoit, of Shawinigan Falls, and James Nichol, of Thorold, have been nominated by several of the locals.

John W. Bailey, of Holyoke, looks like a winner for the office of fifth vice president. He has been nominated by many of the locals although Henry Grosse, of Deferiet, and Simon Weir, of International Falls, Minn., are in the race. Several persons, including E. B. Lambton, of Gouverneur, have been nominated for the office of sixth vice president with all having an equal chance of winning. All are Canadians with the exception of Mr. Lambton. As delegate to the American Federation of Labor Convention the majority of locals nominated Frank P. Barry and Matthew Burns, while Frank McLeod received the greatest number of nominations by locals for delegate to the Canadian Trades Congress.

The odds apparently favor Matthew J. Burns for the presidency in view of the fact that he has been nominated by no less than nineteen locals representing 1,732 members in good standing who will be entitled to vote during the first two weeks in October. Jeremiah T. Carey, former president of the union, has been nominated by three locals with a combined voting strength of 400 members located at Hudson Falls, Felt Mills and Mechanic Falls. William R. Smith, present incumbent, was nominated by five locals with a voting strength of 324 members. Four of the locals nominating Mr. Smith are located in Canada while the Glens Falls organization also seeks his re-election.

Improvements at Wisconsin Rapids Mill

APPLETON, Wis., August 26, 1929.—Most of the work has been completed by the Consolidated Water Power and Paper Company, of Wisconsin Rapids, Wis., in changing over from news print to ground wood book paper. A bleach plant and warehouse were built, and the company is now constructing a filter plant at the Wisconsin Rapids mill. The finishing room also will be enlarged.

Some improvements also are being made at the company's mill at Biron, Wis. A filtering plant will be built there also and some improvements made on the power dam. The company is employing about fifty additional laborers in order to complete this work before winter.

Bright Outlook for Paper Trade in Chicago

According to Reliable Reports, Prospects for Autumn Business Are Decidedly Encouraging—Although News Print Is Rather Quiet At Present, Quotations Are Stable and General Expansion of Demand Is Anticipated In Near Future—Fine Paper Division Steady

CHICAGO, Ill., August 26, 1929.—A decidedly encouraging tone is creeping into conversations relative to prospects for fall business in the Chicago paper markets. Last week only one dark spot appeared. According to reports, the price cutting evil is coming into some grades with special emphasis on ground wood papers. If the bug-a-boo of price cutting can be kept out of this as well as other lines there is no reason, if all reports are correct, why Chicago paper merchants should not enjoy a highly satisfactory fall season.

The news print market is a bit less active than last week but within the next two weeks is expected to get into the fall stride in good shape. Prices are reported uniformly stable. The fine paper merchants are filling orders and though the orders are, as a rule, of small quantity, the volume is there. Book and cover papers are about the same. The seasonal element still holds krafts back but these lines are said to be in excellent shape for fall with shelves well cleaned and a good demand in sight. Tissues will pick up very soon, according to reports.

Paper Salesmen's Golf Outing

The "mystery" prize which attracted so many golfers to the monthly golf outing of the Salesmen's Association, has been fought for and won by Jack Burruss of the Albemarle Paper Company. He won by taking the most putts of the afternoon. The popular event was held Wednesday, August 21, at the Westmoreland Country Club, known as one of the finest private courses in the country. The splendid course and the perfect day plus the hospitality of the Club brought out the biggest crowd yet—all enjoying a genuine outing with all the trimmings.

Getting back to the prize money proposition: Low net was captured by Charles Forrester of the Container Corporation of America. The prize was a Zipper bag. Low gross on either nine was won by Harry Johnson of the Brown Company, a golf bag. Ed Shaeffer, of the Mississiquoi Pulp and Paper Company won a traveling set for taking low putts for the eighteen holes. A guest, B. A. Miller, president Heco Envelope Company won a Schick Repeating Razor for hitting the blind bogey squarely in the eye. The closing event of the summer season will be held next month with a prize offered by the president of the association as the chief mark to shoot at.

The first fall meeting of the Association will be held on Monday, September 9, at the Hamilton Club, according to Harold Knott, president. A general meeting will be utilized to lay plans for the fall season.

Cornstalk Products Exhibit

The Cornstalk Products Company, of Danville, Ill., furnished a part of the exhibit of the Illinois Chamber of Commerce at the State Fair, Springfield, which ended this week. The exhibit of the concern which makes pulp from Iowa and Illinois cornstalks consisted mainly of an illustration of the processes by which the cornstalks are converted into paper. The display created quite a bit of interest following, especially, on the heels of the announcement that the Cornstalk Products Company was seeking new sites for early expansion. Three factors, water supply, cornstalks and rail and highway transportation, enter into the choice.

Paper Board Manufacturers to Meet

Preparations are being completed for the next meeting of the Paperboard Industries Association, which is scheduled for the Drake Hotel, Chicago, September 18 and 19. According to a statement from J. P. Brunt, chairman of the board of directors of the Trade Practice Administration, faster progress in taking advantage of the benefits available through the association's trade practice conferences has been made possible by modifications relative to membership. A big group of representatives of paper board organizations over the country is expected to take advantage of the Chicago meeting and of the opportunity presented to eliminate unethical practices which are demoralizing the industry at the present time. Meetings of the Container, Folding Box and Paperboard groups will also be held as usual.

News of the Trade

From the Allied Paper Mills at Kalamazoo, Mich., comes a very attractive four page spread describing the qualities of Allied Folding Coated Paper. It is a new paper with rag base, said to be strong, with a good printing surface and excellent folding qualities. An insert is devoted to a description of Porcelain Enamel of Allied make, 100 per cent casein sized. A great improvement in direct mail pieces sent out by paper companies is further noted in this splendid work of the Allied advertising department.

Paul Butler, of the Butler Paper Company, Chicago, is at present competing in the United States Polo Association tournament now being held at Oak Brook. Mr. Butler is captain of the Oak Brook team, one of the most formidable in the tournament. He owns an excellent string of polo ponies and is counted as one of the finest polo players in the United States.

Paper Makers' Directory of All Nations

The 1929 edition of the "Paper Makers' Directory of All Nations"—its 38th annual issue—is just published (cloth-bound, 1,080 pp., 21/—net).

This Red Book of the paper industry gives detailed particulars regarding the paper, pulp and board mills of the world, such as location, productions, number and width of machines, tonnage output, power used, telegraphic address, etc., as well as lists of British wholesale stationers, paper merchants, waste paper merchants, rag merchants and paper stock dealers, china clay producers and merchants, card board box manufacturers, paper bag makers, and paper agents with the mills they represent; the mill productions too, are classified under 400 trade headings, alphabetically arranged as to products, country and mill.

The classified index to commercial prospectuses (pages xiii to xxxvii) forms an international buyers' guide of special interest and value to those connected with the paper trade both at home and abroad.

M. R. Isaacs Forms Kemikal Inc.

Kemikal Inc., has been formed, with headquarters at 822 N. Broad street, Philadelphia, Pa., to manufacture Kemolac which makes the top coat of paper fast. The new product makes paper waterproof, improves the luster, elasticity and fastness, increases the strength and toughness and gives the appearance of leather to paper. Kemolac produces a superior coating when mixed with water and applied to paper in the same manner as casein and glue.

The new concern has been formed by M. R. Isaacs, president, who as head of the old Union Casein Company, was one of the pioneers in the introduction in this country of casein as a paper making material.

VICKERY DOCTORS

On breast rolls
—lengthen wire life

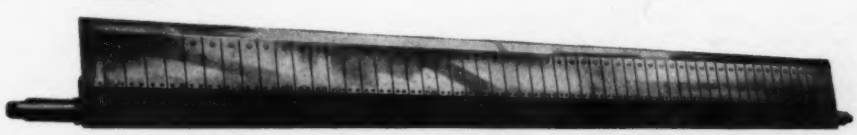
On press rolls
—reduce pick-ups and breaks

On dryers
—improve finish and increase drying economy

On calenders
—assure uniform paper finish

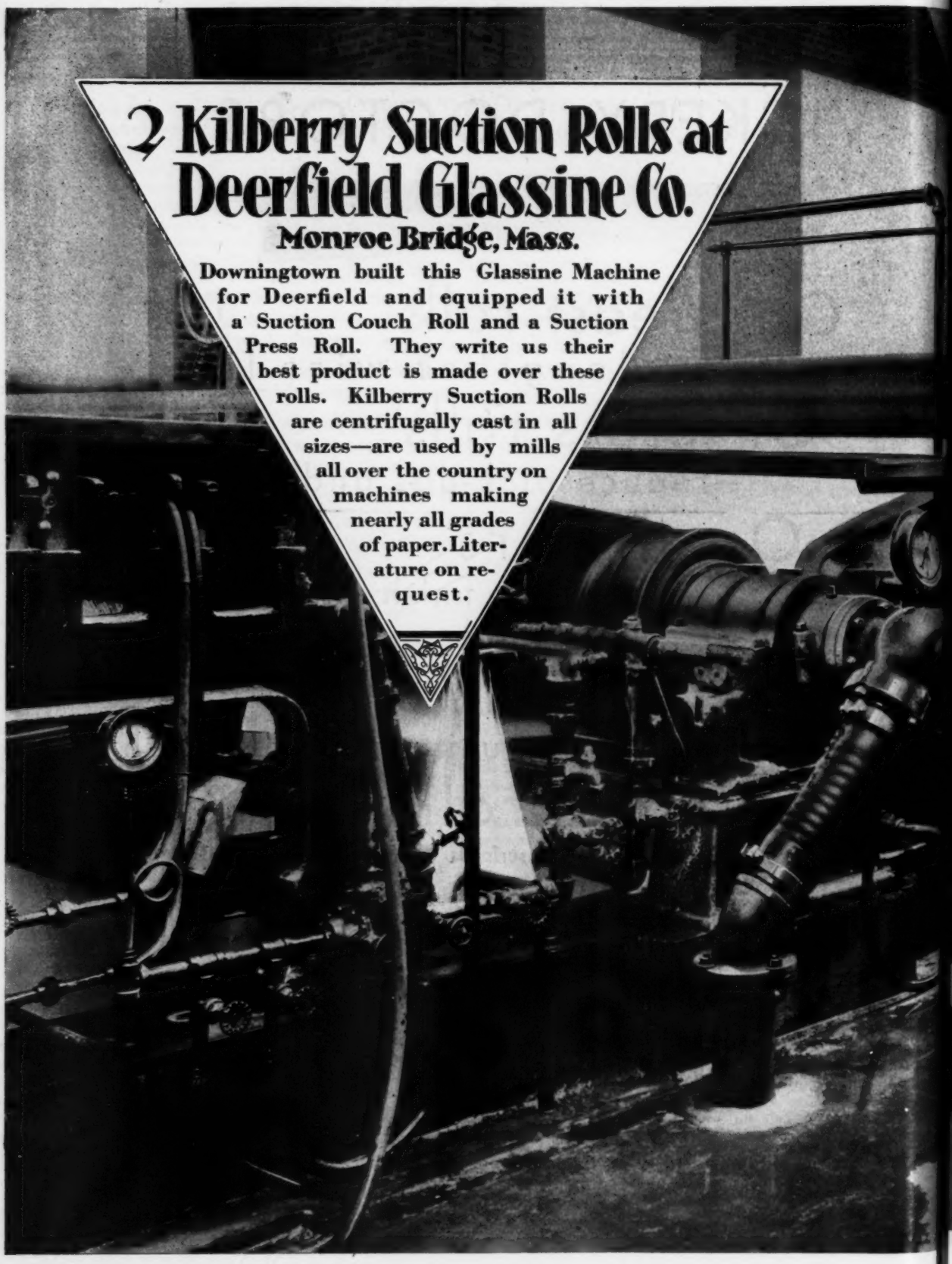
On all rolls
—keep surfaces always clean without fitting or adjustment
—make for the continuous production of uniformly good paper

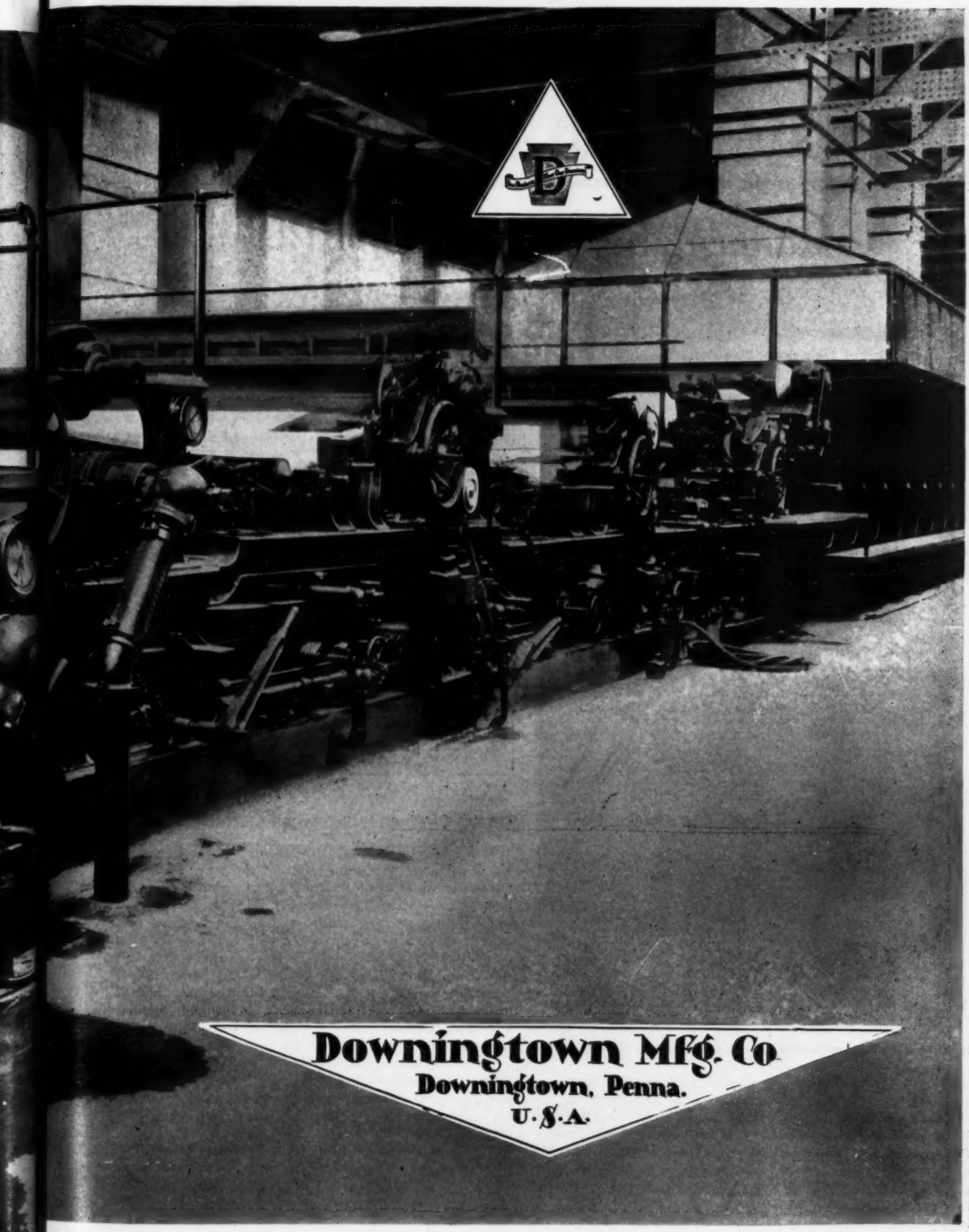
May we show you?



BIRD MACHINE COMPANY
South Walpole ▲ Massachusetts

3148


2 Kilberry Suction Rolls at
Deerfield Glassine Co.
Monroe Bridge, Mass.
Downingtown built this Glassine Machine for Deerfield and equipped it with a Suction Couch Roll and a Suction Press Roll. They write us their best product is made over these rolls. Kilberry Suction Rolls are centrifugally cast in all sizes—are used by mills all over the country on machines making nearly all grades of paper. Literature on request.


Downingtown Mfg. Co
Downingtown, Penna.
U.S.A.

Power Plant Section

Reducing Power Costs Through Unit Treatment

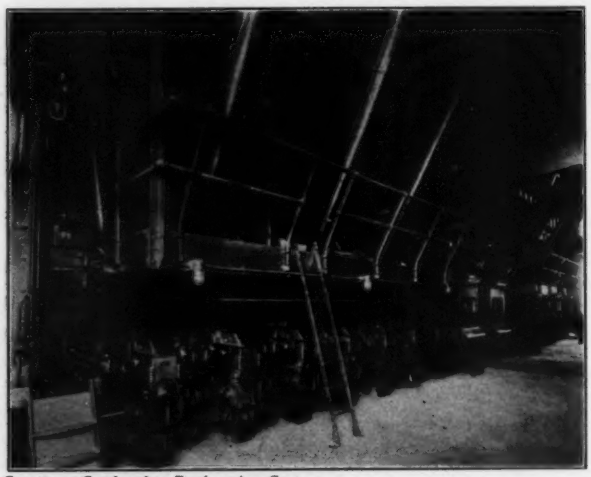
Conducted by Reginald Trautschold, Consulting Engineer

Modernizing The Steam Plant

Stoker Firing for High Pressure Boilers

The modern trend in the mill steam plant is very decidedly in the direction of high steam pressure, high temperature and large boiler units. A good third of all the boiler batteries generating steam at 300 pounds and over, in the industrial plants of this country and Canada, are found among the power houses serving the paper making industry. For the economical operation of such installations, highly efficient fuel combustion is essential, obviously, and in this connection, coal being the cheapest and most commonly employed of power plant fuels, a consideration of coal firing practices, systems of combustion, in these modern mill plants is a matter of much concern to every mill striving for a betterment in its steam generating facilities. In fact, the question of advisable combustion system to adopt is of universal and fundamental importance.

Among thirty representative high pressure steam plants in active paper mill service at present, thirteen are fired by mechanical stokers, thirteen operate on pulverized coal, one burns wood, one gas, one is hand fired and one employs the recently

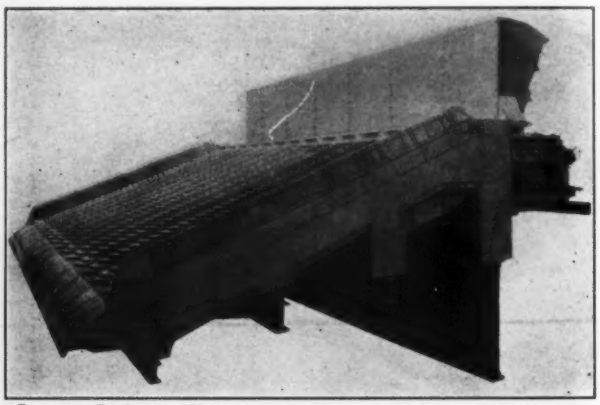


Courtesy: Combustion Engineering Corp.

FIG. 1.

Boiler front showing arrangement of large multiple retort, underfeed stoker.

developed system of burning crushed coal in suspension, the fuel supported by a rising column of air. Futhermore, at the establishment now burning wood, a duplicate installation is being made in which the boilers will be equipped with underfeed stokers for burning coal, although wood refuse may also be used as fuel. The high pressure installation burning gas, local conditions having determined the choice of fuel, may be likened to a pulverized coal burning system. The unusual examples of a high pressure plant fired by hand, however, and that of an installation in which the coal, crushed simply to pass a ¼-inch screen, is consumed while held in suspension may be termed special. In the former, the hand firing hardly constitutes a model after which to pattern a modern combustion system and in the latter the innovation of burning crushed coal in suspension, though it has proved eminently practical and economical where adopted, has still to win the recognition and approval accorded modern systems of stoker and pulverized coal firing.



Courtesy: Combustion Engineering Corp.

FIG. 2.

Side view of multiple retort, underfeed stoker serving boilers shown in Fig. 1.

Such survey indicates clearly that opinion is about equally divided, so far as the steam plants of the paper making industry are concerned, as to which is the better combustion system for its high pressure steam boilers, stoker firing or burning pulverized coal. Incidentally, very much the same situation may be said to exist in connection with the plants of the public utility electric interests, the pioneers in the development of the modern high pressure steam plant. The Edgar Station of the Edison Electric Illuminating Company of Boston, placed in operation in 1925, is a stoker fired plant, for example, while the Lakeside Station of the Wisconsin Electric Power Company at Milwaukee, which went into operation in 1927 and was the first of the central stations to adopt such system of coal combustion, burns pulverized coal. Both these central stations are outstanding examples, highly efficient and generating steam at very high pressures and at low unit cost, yet the fundamental processes of fuel burning are radically different.

Stoker Firing for High Pressure Boilers

It is not the intention here, of course, to advance any opinion in regard to the relative merits of stoker firing and of burning pulverized coal in the operation mill boilers. Local conditions are and must be dominant factors in arriving at a wise selection of

Effective Lubrication. . . .not "oil" and "grease"

"OIL" and "grease" are no longer the buying specifications for industry's lubricants. Operating executives are insisting on *effective lubrication.* That's the thing today. And curiously enough it is very often found that the annual expenditure for lubricants actually becomes less than under the old price-buying basis. "Oil" and "grease" may be cheaper per gallon or per pound *but not per year.*

That's because effective lubrication is always economical of the lubricant—but the gain in maintenance, reduced power consumption, avoidance of shut-downs, minimized repairs and fewer parts replacement far outweigh any other consideration.

Texaco Lubricants combine with Texaco Lubrication Service to produce these results. There is a Texaco Lubricant for every purpose. Back of this complete line you have the accumulated experience of The Texas Company in the manufacture and use of lubricants, and the experience of trained lubricating engineers who will make a detailed examination of your plant and cooperate in securing not only the scientific lubricant but in assuring its most effective and economical use. Write The Texas Company first.

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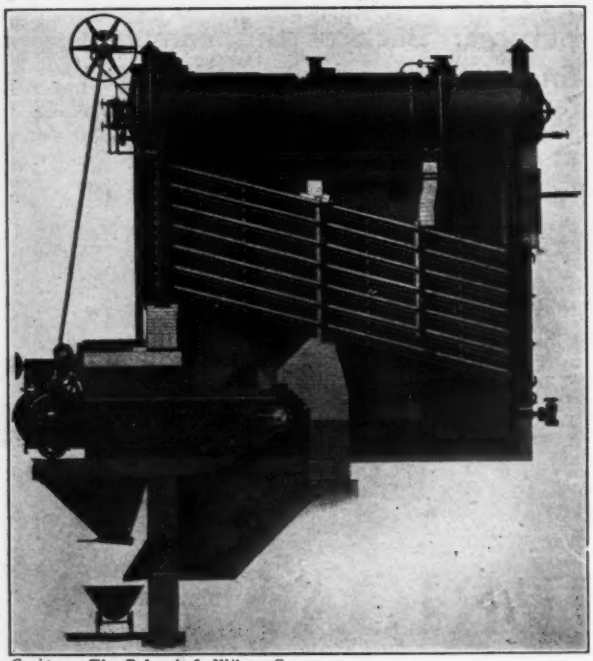
combustion system. Both systems have many meritorious applications to their credit in pulp and paper mill power plants. However, progress in the attainment of low cost steam and power is only made by acquiring familiarity with accomplishments and these pages are dedicated to an exposition of attainments arrived at economically, to money making or conserving accomplishments, rather than to recommendations of any kind. Consequently, both combustion systems, and others as they develop, will be featured impartially, the present discussion being devoted to stoker firing for boilers serving the paper making industry.

An investigation of the stoking equipment employed in the representative high pressure steam plants aforementioned discloses the fact that the majority of stokers in mill plants are of the underfeed variety, either of the multiple retort type for large boiler units or of the single retort type for smaller steam generators, although in certain instances chain grate stokers are employed. The preponderance of underfeed stokers is attributable to the fact that such stokers, as a class, have the ability to carry somewhat heavier fires than either chain grate or overfeed units and due to the agitation of the fuel bed by the charging and distributing rams can handle caking fuels with quite satisfactory results.

Overfeed stokers are also advantageous in burning coals of the caking variety, it is true, the movement of the grate bars keeping the fire bed broken up and open, but with this class of stoker the fire bed is of necessity comparatively thin and hence has not the same flexibility and capacity in meeting sudden heavy demands that characterizes the underfeed type of stoker. Chain



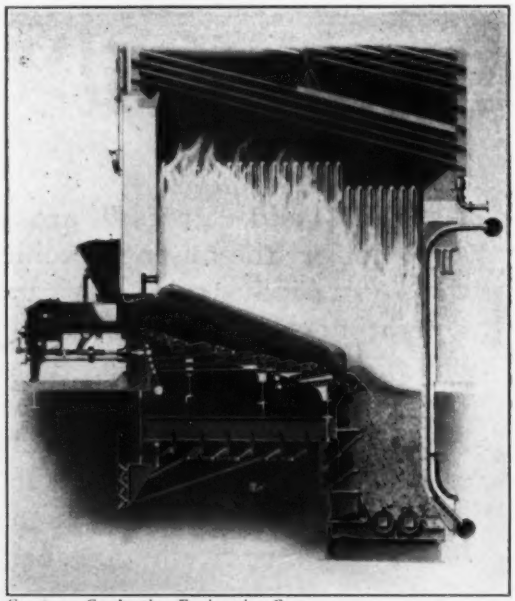
Courtesy: The Babcock & Wilcox Co.

FIG. 4.

Sectional view of modern chain grate stoker and water tube boiler equipped with superheater.

grate stokers, on the other hand, are especially adaptable to the burning of low grade fuels, particularly those high in volatile matter. Natural draft chain grate stokers are quite well suited to the handling of free burning coals. The use of forced draft with such units, however, results in considerably higher capacities, naturally, gives quicker response to rapidly fluctuating loads and materially extends the variety range of fuels which can be burned successfully. Either high or low volatile coals, lignites, anthracite and coke breech can be burned satisfactorily.

The chief characteristics of the various classes of stokers have been discussed in these columns in previous installments and the repetition here is simply to emphasize the fact that all types of modern approved stokers have characteristics which well adapt them to service in paper mill power plants under certain conditions. Examples of profitable installations of multiple retort type underfeed, chain grate and overfeed stokers were discussed November 10, 1927, and stoker applications from a somewhat different angle on April 19,1928, while the issue of December 6, 1928,



Courtesy: Combustion Engineering Corp.

FIG. 3.

Sectional side elevation of modern, multiple retort, underfeed stoker and furnace.

was given over largely to a consideration of successful installations of large multiple retort type underfeed stokers.

Modernizing Effects 30 Per Cent. Saving

To round out the exposition of profitable stoker installations in pulp and paper mill plants, an example of a single retort underfeed stoker installation held to be chiefly responsible for a very considerable reduction in coal burned per ton of pulp produced is at the large kraft mill of the Thilmany Pulp and Paper Company, Kaukauna, Wis. The steam generating plant prior to modernizing the boiler rooms serving the paper and sulphate pulp mills consisted of two 500-horsepower boilers and a smaller boiler, all set singly, which were depended upon for the entire steam supply for power and process requirements. Old fashioned and inefficient boiler settings, antiquated stokers, faulty piping arrangement and crude methods of handling the coal and ashes so burdened the plant, however, that it was felt that a radical remodeling was necessary, both to meet increased steam demands and to reduce costs of production.

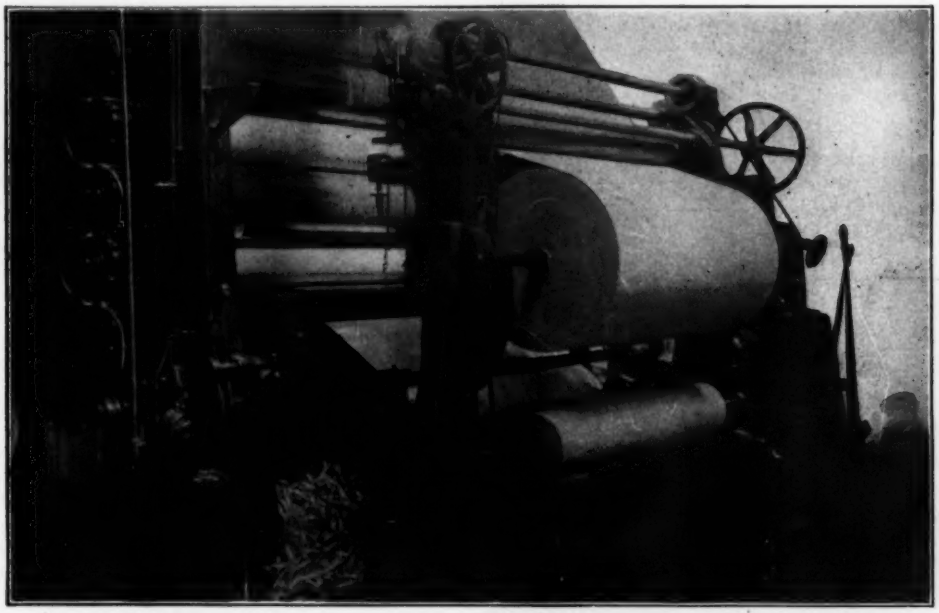
The small boiler was discarded and a third 500-horsepower unit secured to increase the capacity of the battery. These larger vertical water tube boilers were then installed in improved settings, furnished with individual single retort stokers. The steam lines and air ducts were straightened out and improvements were instigated to make the methods of handling coal and ashes more efficient and up-to-date. A further refinement, deemed advisable on account of the widely fluctuating load, from 90 to 225 per cent. of normal boiler rating, was the installation of a system of automatic combustion control to maintain a substantially uniform steam supply.

The total investment entailed for this quite radical remodeling of the steam plant amounted to about $30,000,000. The return realized may be summed up as an average reduction of 30 per cent.

"M & W" Drum Winders for Super-Calenders

PERMITS FASTER SPEED FOR CALENDERING

Shipping Rolls are made direct from Supers without rewinding the Rolls



Two-Drum Type Winder (Photograph taken in one of the mills of the Kimberly-Clark Co.)

Built with Two or Four-Drums
Makes use of wide stacks desirable

Rolls trimmed direct from Super-Calenders —(retrimming unnecessary).

Rolls readily changed from winding drums to unwinding shaft by means of self-contained electric motor lift.

Straight, hard rolls are made without wrinkles . . . no soft rolls or telescoped ends.

Winders equipped with automatic tension regulation to eliminate paper breaking between calender and winder . . . and to regulate the hardness of rolls to be wound.

For wide stacks of Calenders, the "M & W" Four-Drum Super-Calender Winder reduces the waste of finished product to a minimum.

All features of the well-known "M & W" Four-Drum Winder used for making shipping rolls direct on paper machine are retained—such as independent winding of rolls on independent shafts, etc.

"M & W" Four-Drum Super-Calender Winders equipped with Removable Top and Bottom Slitters. "M & W" Brass Collapsible Winding Shafts are the latest improvement for High Grade Mills.

Further Particulars Upon Request

The Moore & White Co.
Philadelphia, Pa.
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Paper Mill Machinery

Patents Pending for Recent Improvements to "M & W" Drum Winders

in the amount of coal burned per ton of pulp produced. The major part of this very worthwhile saving is attributed to the effective service discharged by the modern stokers. In view of the fact that the mill is reputed to produce 180,000 pounds of sulphate pulp daily, when running at capacity, the improvement should prove a highly profitable investment, the value of many thousands of tons of coal representing the annual yield.

While other examples of profitable installations of the various classes of approved mechanical stokers in pulp and paper mill power plants might be presented, those which have been discussed in this and previous issues should serve to have demonstrated the truly high value of these modern mechanical stoking devices in the economical operation of these mills and in the attainment of low cost production. Virtually all types of such stokers have been instrumental in affecting substantial savings under certain conditions. All classes should command the careful consideration of the mill before final selection is actually made.

Pressures, Superheat and Capacities

Their influence as factors in the attainment of conditions characterizing the modern high pressure steam plant, *i.e.*, high steam

Courtesy: Westinghouse Electric & Mfg. Co.

FIG. 5.

View of remodeled boiler fronts at the Thilmany Pulp & Paper Co., showing arrangement of the single retort, underfeed stokers reputed to have been largely instrumental in effecting a reduction of 30 per cent in coal burned per ton of pulp produced.

pressure, marked superheat and large boiler units, is perhaps best demonstrated by an investigation of the respective accomplishments with stoker firing and with the burning of pulverized coal. Such comparison does not aim to disparage the merits of either system of combustion in any way, but rather to show that if the results which have been secured, attainments with the respective systems, have been comparable, both systems have their proper and logical field in the power plants serving the paper making industry, as well as in other classes of boiler plants. Attainments on a par, the correct choice between the two combustion systems at present competing in the high pressure steam plant field, consequently, depends upon local conditions and the respective weights of such questions as cost, maintenance, dependability, flexibility and reliability of service.

The average boiler pressure for the stoker fired plants in the group of representative high pressure installations previously discussed is a matter of 373 pounds per square inch and for the group burning pulverized coal slightly more, 412 pounds. However, in neither group is a plant considered generating steam at anywhere near the pressure found feasible and economical in central station service, nor as high as soon will be employed in a mill power plant at present under construction. Furthermore, the record for high steam pressure in a central station power plant was first attained by a stoker fired installation and this has not as yet been exceeded by any more recently constructed high pressure steam plant burning pulverized coal.

In respect to ability to attain high steam pressures, consequently, the two combustion systems are apparently very much on a par and this is further confirmed by the exceedingly high efficiencies secured with either system with modern boilers and their refinements of effective accessories of various kinds, efficiencies of well over 90 per cent. having been realized. Attainments such as these closely approach the ultimate, for quite irrespective of the system of combustion employed, no more heat can be liberated by combustion than is available in the fuel. Invariably certain heat losses are inevitable, those which are unavoidable and those which can be controlled to a certain extent.

The unavoidable losses result from the necessity of discharging the gases of combustion at a temperature considerably higher than the temperature of the incoming fuel and from the moisture and hydrogen content of the fuel. So far as the temperature of the exhaust gases is concerned, the loss need be no greater in one system of combustion than in the other, its control lying not with the process of combustion but with the transfer of the liberated heat to the boiler contents and the heat reclamation by superheaters, economizers, etc. As for the losses occasioned by the moisture in the coal and by the hydrogen content of the fuel, the burden is imposed differently in the two systems. The thorough preliminary drying of the coal which is essential for satisfactory pulverized coal firing is the tax in one case and in the other the loss is occasioned within the boiler furnace. Which tax is the heavier is a mooted question and really of little concern, for it is unavoidable in major part in any event. If there is an advantage, it would seem to favor drying out the coal within the combustion chamber, the method with stoker firing.

The losses subject to a certain amount of control result from the amount of air in excess of that necessary for perfect combustion which has to be heated to the temperature of the exit gases, the moisture accompanying such excess, unconsumed solid combustible matter discharged with the ashes and refuse, unconsumed gaseous combustible escaping with the exhaust gases and the heat radiated from the setting of the unit. In none of these respects is one system of combustion superior to the other, for remedies which have been evolved to ameliorate these conditions are about as effective when applied to one system of firing as to the other.

The average intensity of superheat carried by the steam in the representative high pressure steam installations of the paper making industry has so far favored stoker fired plants slightly, being in the case of these 161.5 degrees Fahrenheit and 152.3 degrees in the plants burning pulverized coal. Here again, the two systems may be said to be on a par, for neither in one nor the other has anywhere near the final steam temperatures been developed which are even at present quite feasible.

In foreign countries, where higher temperatures have been utilized than have as yet been used on this continent, it is not at all unusual to employ steam at a final temperature of as high as from 800 to 1,000 degrees Fahrenheit. That even such ultra-high temperatures are practical and feasible with modern boilers and combustion systems appears probable from the fact that at the present time the Detroit Edison Company is having a steam turbine built to operate on steam at 365 pounds pressure and a final temperature of 1,000 to 1,100 degrees, a condition necessitating the steam carrying well over 550 degrees of superheat.

In respect also to the third requisit, ability to serve large steam generating units, no superiority can be claimed for either system of combustion. When burning pulverized coal, the consumption of the necessary fuel is only a matter of having a sufficient number of burners of adequate capacity in service. Likewise, in stoker firing, stokers of virtually any required size and capacity can be obtained. Recently, one of the leading stoker manufacturers built

For Box Papers

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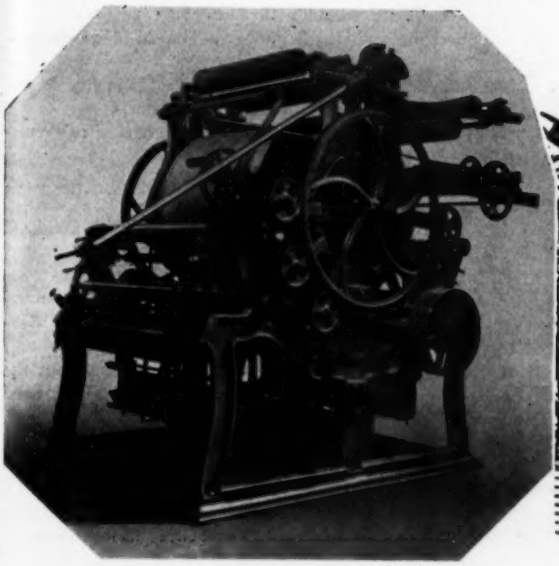

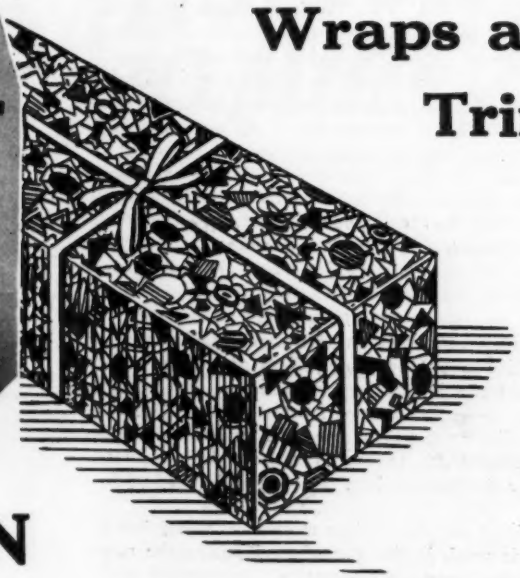

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6-Color Surface Printers

Required production speeds and high standards of beauty and accuracy of printed designs in the converted paper industry has brought to the front the modern Waldron Surface Printer. Surface printing by greatly reducing the time required to assemble the make-ready and preventing the unsightly repeats of patterns—greatly improves the production possible by the older method of plate printing. The assembly of blocks and color units on the Waldron Surface Printer assures most accurate registration and remarkably even inking completely eliminating the objectionable clouded effects. There's a Waldron Surface Printer for all requirements—for one and up to 16 colors.

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Paper Rolls (Calender and Embossing)

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WALDRON

Paper Converting Machinery

a unit capable of burning coal fast enough to generate 350,000 pounds of steam per hour continuously and nearly 500,000 pounds an hour under peak load conditions. Doubtless, even this unprecedented steam generating record could be surpassed with a larger and quite practical stoker should the need arise.

On all three counts, in fact, stoker firing with approved modern types of mechanical stokers ranks quite as high as burning the coal in dried and pulverized form. When a stoker burns coal with only a very small amount of excess air and with only a trivial loss of carbon in the ash pit, as the modern approved mechanical stoker will, and when it burns a sufficient quantity of coal, it has fulfilled its function quite as well as can any other system of combustion. It then becomes the responsibility of the boiler and such accessories as water or air cooled walls, economizers, superheaters, water backs, air-preheaters and draft control to promote and stimulate the absorption of heat by the boiler contents. Also, in stoker firing it is essential that the baffling of the boiler be properly proportioned and that the setting be free of any leaks.

The refinements and boiler accessories which are quite generally held essential for the successful burning of pulverized coal are just about as necessary when stoker firing is employed. A stoker, also, needs the same care and attention which should be accorded any machine subjected to long periods of arduous service in a dusty atmosphere and under heavy mechanical strains. The modern mechanical stoker of approved construction, despite the dirty work it is called upon to perform, is a mechanism of precision and quite considerable refinement and should be operated with proper care and attention, kept clean and adequately lubricated.

As has been pointed out, the modern mechanical stoker has accomplished quite as much in the way of modernizing the steam plant as has any other system of combustion. It possesses all the essential characteristics required for the attainment of all necessary requisites in the operation of the present day high pressure steam plant and no other system of combustion as yet developed shows any marked superiority or economy in operation. In short, the stoker has and can accomplish all that the mechanisms of any other system of combustion has as yet been able to do. Local conditions, questions pertaining to costs and upkeep, flexibility and reliability in service, therefore, should be the dominating factors in arriving at a wise selection of stoker firing or pulverized coal burning for the economical steam plant.

Solution of the Slime Problem

L. Wallace & Tiernan, Newark, N. J., have reprinted an article entitled "Chlorine, the Solution of the Slime Problem in Paper Mills" by W. L. Savell, technical representative of the Mathieson Alkali Works, Inc.

"Quality in paper mill stock", says the foreword to the booklet, "is only a relative term—but how positively it defines profits and losses in paper mill operation! In the processing of paper one of the chief drawbacks to quality in the finished product has been the "slime spot" and the loose porous sheet resulting from algae and other biological growths developing in the stock during processing.

"Research work covering several years—in connection with which Wallace & Tiernan representatives and equipment took an active part—has conclusively proven that with proper treatment by chlorine processing difficulties due to "slime" can be eliminated. Improved beating conditions, better hydration uniformity of stock flow, superior sheet formation, more satisfactory drying and obviously increased production and larger earnings are reported from mills which have adopted the chlorination treatment."

The article on "Chlorine, the Solution of the Slime Problem in Paper Mills" contains a wealth of information of genuine value to every paper mill owner, superintendent or operator.

Interested persons in the industry may obtain gratis a copy of this booklet by writing Wallace & Tiernan, Newark, N. J.

A. C. S. Cellulose Chemistry Division Program

The program for the fall meeting of the Division of Cellulose Chemistry of the American Chemical Society at Minneapolis, Minn., September 10-13, includes the following papers:

1. E. C. Sherrard and E. Beglinger.—The Mild Hydrolysis of Wood.
2. S. I. Aronovsky and R. A. Gortner.—The Chemistry of the Cooking Process. I. Cooking aspen with Water.
3. L. E. Wise.—The Water-Soluble Polysaccharide of Western Larch Wood.
4. G. J. Ritter and R. M. Seborg.—The Effect of Light on the Chlorination of Wood.
5. H. Hibbert and J. L. Parsons.—The Nitration of Oxidized Cellulose.
6. R. E. Montonna and K. A. Kobe.—Cellulose Furoate.
7. S. E. Sheppard and P. T. Newsome.—The Sorption of Water Vapor by Cellulose and Its Derivatives. Part II. Kinetics of the Sorption.
8. E. R. Schafer and F. A. Simmonds.—A Comparison of the Physical and Chemical Characteristics of Hemp Stalks and Seed Flax Straw.
9. Discussion of Committee Reports.
10. S. E. Sheppard.—The Dispersion of Cellulose and Cellulose Derivatives.
11. C. S. Webber, C. J. Staud and H. LeB. Gray.—Acetolysis of Cellulose with the Isolation of Two Crystalline Forms of Glucose Penta-Acetate.
12. Election of Officers.

Members of the Technical Association of the Pulp and Paper Industry are cordially invited to attend the Minneapolis meeting of the American Chemical Society. Attendance at these meetings is open to all registered individuals, whether members of the society or not. The complete program of the different divisions of the society will appear in the August 20th issue of the News Edition of Industrial and Engineering Chemistry.

Twelve Years With Champion

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, August 19, 1929.—"Twelve Years with Champion"—the splendid record of eleven men and one woman—is published in detail in the July number of the Champion Coated Paper Company's *News* at Hamilton.

The twelve are Goldie Shapherd, Elmer Hoskins, Claude Hightower, Michael Sena, Albert C. Ullrich, William H. McCoy, Blair Utter, Everette Frazee, James H. Johnson, Moses Gatliff, Robert L. MacKnight and Thomas Vail.

"Old timers" at the Champion mills are now listed by quarter years because the numbers are increasing.

Twelve years ago dates back to 1917, when as the *News* says, "Jess Willard was a champion prize-fighter and Jack Dempsey hadn't been heard about much. There were no talkies—and Hoover was just beginning to take charge of our eating. Yes, twelve years is a good long time, and it takes a lot of good hard work to keep a job progressing during all that time."

Grays Harbor Pulp Co. Arranges Added Stock

Issuance of 8,790 shares of preferred and 17,580 shares of common stock of the Grays Harbor Pulp and Paper Company has been authorized by the California Corporation Department.

The money will be used to complete the corporation's mill at Hoquiam.

The shares will be issued in units of one preferred and two common at not more than $124 a unit. The stock will be distributed to common stockholders of record August 20.

On June 30 the company had 54,927 shares of common outstanding. The present authorized issue will increase the company's capital structure to $1,054,000. Its net worth, as of June 30, is fixed at $2,813,466.

The Symbol of Inlet Satisfaction in 120 Mills!

IN any of the 120 mills where Voith Inlets are in use—this "VALLEY IRON" name plate represents a degree of Inlet satisfaction which is unattainable through any other type of installation.

Because—the Voith Inlet has distinct advantages which are reflected in greater productive capacity—more uniform caliper—lower operating cost—and better paper quality.

Which—simmered down—mean bigger profits for their users at the end of each year!

Can any better reason be offered for investigating the merits of this machine—*what it can do—and how much it will earn?*

We have the facts ready to mail to you in an interesting booklet. May we send it? Address the Valley Iron Works Company, Appleton, Wisconsin.

VALLEY

Equipment for Paper and Pulp Mills

New York Office: 350 Madison Ave.
Western Mfg. & Sales Div.: Smith & Valley Iron Works Co., Portland, Ore.

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending June 30, and for the Six Months Ending June 30, 1929 as Compared with Corresponding Months of Previous Year

IMPORTS—PAPER

	June				Six Months Ending June 30			
	1928		1929		1928		1929	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and Manufactures (total)	.....	$12,025,928	.....	$13,480,291	.....	$75,934,981	.....	$77,305,244
Printing paper—								
Standard newsprint .....lbs...free	327,614,337	10,693,113	404,795,776	12,088,582	2,068,350,409	67,570,558	2,263,431,353	68,470,491
Imported from—								
Finland .....lbs.	5,378,345	133,942	7,854,244	188,378	36,213,470	956,025	29,385,016	709,489
Germany .....lbs.	1,168,944	32,501	1,356,374	34,673	8,418,357	228,635	7,922,558	200,266
Norway .....lbs.	846,946	22,475	.....	.....	8,643,563	224,620	4,520,141	112,919
Sweden .....lbs.	5,680,499	153,604	7,286,993	180,901	49,021,999	1,322,559	45,483,058	1,158,906
Canada .....lbs.	298,032,322	9,848,175	371,807,671	11,222,400	1,906,712,503	62,971,179	2,095,498,919	64,024,836
Newfoundland and Labrador .....lbs.	16,507,281	502,416	16,277,694	457,878	58,694,585	1,848,801	80,408,861	2,259,723
Other countries .....lbs.	.....	.....	212,800	4,352	645,932	18,739	212,800	4,352
All other n.e.s .....lbs...dut.	591,605	31,352	493,065	24,588	3,967,682	187,810	2,229,853	104,420
Grease-proof and water-proof papers...lbs...dut.	115,032	20,455	110,028	25,299	546,442	110,643	696,145	145,745
Kraft wrapping paper .....lbs...dut.	544,715	23,799	883,690	37,501	3,167,989	135,250	4,611,224	197,362
Other wrapping paper .....lbs...dut.	1,368,568	35,043	555,717	11,239	9,061,448	191,542	3,644,791	103,546
Writing, letter, drawing, etc., papers..lbs...dut.	246,657	64,998	311,587	75,668	1,427,317	356,119	1,577,690	393,886
Surface-coated paper .....lbs...dut.	151,261	80,644	216,758	87,921	1,103,510	523,731	1,356,630	567,032
Tissue, copying, etc., papers.....lbs...dut.	213,931	132,638	409,809	217,517	1,527,807	960,590	2,222,237	1,188,902
Paper boards, n. e. s.—								
Pulp boards in rolls .....lbs...dut.	4,985,076	106,171	5,016,615	108,661	29,101,446	645,591	31,084,632	689,512
Paper boards, pulp board, and card-board .....lbs...dut.	1,233,224	29,365	2,369,978	50,536	11,422,373	255,500	11,998,399	273,550
Leather board, test, and wall board..lbs...dut.	79,592	2,227	103,142	5,381	546,405	14,754	861,441	34,060
Cigarette paper, cigarette books, and Covers .....lbs...dut.	982,224	255,599	384,961	125,001	6,011,690	1,635,276	5,446,322	1,778,636
Hanging paper (wall paper).....lbs...dut.	107,855	44,441	106,590	43,933	1,281,106	369,069	1,341,367	384,779
Duplex decalcomania paper, not printed.lbs...free	85,509	19,997	71,693	17,164	341,638	79,923	358,166	91,216
Paper boxes .....dut.	.....	154,208	.....	182,210	.....	870,440	.....	828,239
Pulp or papier-mache and manufactures, n. e. s. .....dut.	.....	22,936	.....	42,364	.....	232,056	.....	292,240
All other paper and manufactures.....dut.	.....	308,942	.....	336,726	.....	1,796,129	.....	1,761,611
WOOD PULP								
Mechanically ground wood pulp.....tons..free	18,329	430,728	21,441	539,836	111,408	2,729,913	111,528	2,826,597
Sulphite wood pulp .....tons	79,036	4,668,227	93,600	5,514,777	439,655	25,787,294	493,860	29,010,049
Unbleached .....tons..free	53,071	2,682,568	63,795	3,213,813	294,129	14,778,244	325,833	15,301,364
Bleached .....tons..free	25,965	1,985,659	29,805	2,300,964	145,526	11,009,050	168,027	12,708,685
Imported from—								
Finland .....tons	9,659	434,449	10,733	542,002	49,441	2,057,431	57,069	2,702,482
Germany .....tons	6,151	423,049	4,283	308,064	28,640	1,908,760	31,604	2,201,573
Norway .....tons	4,919	321,434	6,372	475,450	33,665	2,235,231	30,238	2,059,151
Sweden .....tons	28,122	1,578,818	40,649	2,209,012	129,439	7,067,784	181,758	10,068,828
Canada .....tons	28,297	1,805,210	30,156	1,897,878	179,248	11,452,141	181,114	11,325,062
Other countries .....tons	1,888	105,267	1,407	82,371	19,222	1,065,947	12,077	652,953
Sulphate wood pulp, unbleached (kraft pulp) .....tons..free	28,587	1,589,345	41,881	2,206,481	147,751	8,303,355	167,041	9,173,410
Imported from—								
Finland .....tons	2,313	106,271	1,433	68,354	15,247	652,333	12,315	581,567
Norway .....tons	1,547	82,745	1,424	64,955	6,999	361,879	7,130	382,528
Sweden .....tons	14,291	771,869	30,723	1,568,869	56,634	2,970,305	89,396	4,618,595
Canada .....tons	10,231	619,274	8,100	494,976	67,138	4,238,860	54,566	3,417,167
Other countries .....tons	205	9,186	201	9,327	1,733	79,978	3,634	173,553
Sulphate wood pulp, bleached.....tons..free	1,245	90,184	1,980	163,260	5,634	348,232	8,074	600,844
Other pulp .....tons..free	665	41,111	442	38,202	2,531	184,419	4,916	274,851
CRUDE PAPER STOCK								
Rags for paper stock.....lbs...free	38,612,964	699,963	41,063,836	862,963	210,197,802	3,907,175	211,729,844	4,268,358
Waste bagging, waste paper, etc.....lbs...free	13,673,170	177,030	14,478,718	172,979	72,931,325	1,047,073	71,927,266	872,693
Old rope and all other paper stock....lbs...free	8,408,922	177,386	12,082,225	355,338	31,331,946	886,389	52,183,381	1,674,901
CHEMICALS AND OTHER PAPER MAKERS' MATERIALS								
Colors, dyes, stains, color acids, and color bases, n. e. s.....lbs...dut.	454,454	461,488	513,037	569,303	3,072,134	3,321,884	4,177,109	4,782,463
Imported from—								
Belgium .....lbs.	12,441	13,613	4,187	5,676	71,587	77,334	29,863	38,330
France .....lbs.	11,145	9,970	2,090	1,700	43,392	53,974	63,381	87,456
Germany .....lbs.	290,202	296,521	335,544	338,226	1,998,700	2,030,895	2,965,593	3,303,580
Italy .....lbs.	7,040	8,100	1,074	415	44,701	41,364	5,035	4,613
Switzerland .....lbs.	118,346	120,639	165,575	216,812	761,209	940,885	1,035,862	1,260,827
United Kingdom .....lbs.	9,901	8,082	2,129	3,174	58,036	54,510	43,541	49,999
Other countries .....lbs.	5,379	4,563	2,438	3,300	94,529	122,922	33,834	37,658
Casein or lactarene .....lbs...dut.	2,659,620	328,885	2,138,101	263,796	15,703,558	2,082,436	18,262,719	2,180,618
Kaolin, china, and paper clay.....tons...dut.	16,888	191,717	24,645	263,405	134,487	1,415,756	137,751	1,494,930

(Continued on page 38)

TECHNICAL BOOKS

for

The PAPER *and* PULP INDUSTRIES

CLASSIFICATIONS AND DEFINITIONS OF PAPER

REVISED EDITION, 1928

by Clarence J. West

Prepared under the auspices of a committee appointed by the American Paper and Pulp Association. The definitions in this book are offered as those generally accepted by the trade. In the preparation of these definitions the committee has made use of all available published data and of the many suggestions received from the industry and trade, through the various sectional committees.

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The only attempt that has ever been made to bring into one complete narrative all the material facts relating to the industry and to present in an exhaustive and comprehensive manner, on the purely historical side, the annals of this branch of American manufacturing, from the erecting of the first little mill in Philadelphia, in 1690, to the present time. A worthy contribution to the literature of American industrial history.

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CHEMISTRY *of the* SULPHITE PROCESS

by R. N. Miller and W. H. Swanson M. W. Bray, R. Soderquist, T. M. Andrews, W. H. Mansson

The papers which constitute this book appeared originally in the trade and technological journals as current reports of the progress of investigations under way at the United States Forest Products Laboratory for a period of about six years beginning with 1921. This information is the accumulation of years of experience. The method by which sulphite with the desired properties is to be made, the conditions under which it must be cooked, the strength of acid to be used, the equipment, operation and materials are all fully covered in this book. Included in this volume also is "Sulphite Pulp from Spruce" by Donald E. Cable.

PRICE $3.00

PAPER MAKING MATERIALS

by Clarence J. West

In this edition, the literature has not only been brought up to date, but many additions have been made to the earlier work.

The paper making materials have been listed in dictionary style under the common and botanical names, the references being given only under the latter.

Books and articles are listed under the author (or title) in the dictionary arrangement, and to refer. under each material, to the author, and the year of publication.

This list includes all the woods tested at the Forest Products Laboratory, as well as many tested by the Imperial Institute of Great Britain and by other workers.

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PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(*Continued from page 36*)

EXPORTS—PAPER

	June 1928 Quantity	June 1928 Value	June 1929 Quantity	June 1929 Value	Six Months Ending June 30 1928 Quantity	Six Months Ending June 30 1928 Value	Six Months Ending June 30 1929 Quantity	Six Months Ending June 30 1929 Value
Paper and Manufactures (total)	.....	$2,826,076	.....	$2,928,948	.....	$15,275,095	.....	$18,892,239
Printing paper—								
Newsprint paper ....lbs.	1,732,735	59,689	2,739,306	110,509	10,474,527	400,469	17,030,798	630,743
Exported to—								
Canada ....lbs.	52,891	1,054	22,092	1,543	134,798	4,839	437,478	20,446
Central America ....lbs.	154,802	5,265	102,362	3,509	541,444	19,271	563,295	20,117
Cuba ....lbs.	284,304	8,728	386,503	14,428	2,262,856	81,751	1,754,671	63,290
South America ....lbs.	346,865	11,085	664,908	27,556	2,410,036	89,859	4,589,236	169,716
China, Hong Kong, and Kwantung..lbs.	.....	.....	337,126	12,164	215,703	8,548	3,303,818	111,861
Philippine Islands ....lbs.	813,497	30,184	861,504	32,642	4,360,824	175,060	5,226,150	188,386
Other countries ....lbs.	80,376	3,373	364,811	18,667	548,866	21,141	1,156,150	56,927
Book paper, not coated ....lbs.	2,974,180	199,725	2,380,024	176,810	12,166,468	899,644	19,045,731	1,337,215
Exported to—								
Europe ....lbs.	112,494	10,883	80,141	5,903	297,281	29,531	999,045	82,061
Canada ....lbs.	1,531,035	84,752	837,852	52,146	4,738,653	283,010	6,558,985	398,135
Mexico ....lbs.	53,532	5,711	99,454	8,173	258,294	31,313	303,493	31,064
Cuba ....lbs.	518,299	36,576	428,271	31,805	2,472,649	184,158	2,476,829	174,335
Argentina ....lbs.	31,295	3,998	23,823	2,127	300,493	29,468	1,364,023	107,132
Other South America ....lbs.	159,533	15,856	127,813	9,394	618,310	54,034	666,212	55,974
China, Hong Kong, and Kwantung..lbs.	7,352	605	293,770	17,745	971,998	80,618	3,052,077	183,862
Philippine Islands ....lbs.	299,291	17,881	153,986	10,545	1,125,292	77,038	2,116,843	139,931
Australia ....lbs.	116,433	12,263	169,978	23,486	473,123	55,493	688,512	93,533
Other countries ....lbs.	144,916	11,200	164,936	15,486	910,375	74,981	819,712	71,188
Cover paper ....lbs.	197,767	32,869	174,974	27,885	1,099,153	182,426	1,024,949	174,557
Grease-proof and waterproof paper....lbs.	311,633	44,439	179,730	33,619	1,486,848	227,126	1,369,279	253,356
Overissue newspapers ....lbs.	.....	.....	16,085,074	174,445	.....	.....	70,711,160	802,791
Wrapping paper ....lbs.	2,603,069	195,374	3,211,566	230,455	17,785,457	1,288,812	21,498,097	1,482,943
Surface-coated paper ....lbs.	806,103	108,475	1,004,402	98,878	4,439,151	511,761	9,378,719	848,101
Tissue and crepe paper ....lbs.	419,787	91,707	370,122	80,407	2,777,486	573,773	2,189,460	476,192
Toilet paper ....lbs.	473,220	49,476	470,341	52,173	2,759,729	309,375	3,569,951	402,998
Paper towels and napkins....lbs.	224,922	27,041	285,519	34,338	1,317,115	168,579	1,682,478	198,624
Box board ....lbs.	4,135,381	107,348	5,890,507	158,436	25,330,091	724,573	27,566,881	733,098
Bristols and bristol board....lbs.	133,095	17,953	241,337	20,796	987,372	107,484	1,587,897	150,569
Other paper board and straw board....lbs.	3,579,690	176,196	3,496,890	168,814	19,485,282	972,856	20,724,793	986,788
Sheathing and building paper....lbs.	1,236,178	44,416	2,084,925	70,157	6,365,015	238,902	12,735,018	426,944
Fiber insulating lath or board....sq. ft.	.....	.....	2,723,864	84,677	.....	.....	11,348,840	369,009
Wall board of paper or pulp....sq. ft.	4,568,604	161,472	5,590,758	184,712	25,907,072	862,104	32,756,982	1,071,240
Blotting paper ....lbs.	338,941	34,694	281,568	31,418	2,097,357	239,023	1,942,566	223,906
Filing folders, index cards, and other office forms ....lbs.	129,967	45,624	108,108	43,968	774,901	265,497	818,652	302,198
Papeteries (fancy writing paper)....lbs.	45,418	11,042	49,571	17,937	347,508	77,628	312,028	84,990
Other writing paper ....lbs.	2,246,997	233,801	1,955,710	220,218	11,985,066	1,402,121	14,941,743	1,578,562
Paper hangings (wall paper)....yds.	1,578,656	31,674	995,827	26,476	20,852,357	392,691	18,689,194	399,066
Paper bags ....lbs.	800,422	68,895	1,099,333	86,091	4,278,576	396,213	5,694,276	502,067
Boxes and cartons ....lbs.	2,417,751	145,595	2,234,173	161,316	13,065,005	860,955	15,157,384	972,034
Envelopes ....lbs.	158,603	25,532	199,050	34,468	1,233,427	204,811	1,226,637	211,068
Vulcanized fiber sheets, strips, rods, and tubes..lbs.	593,334	144,613	425,579	97,605	2,710,448	726,012	3,234,249	800,080
Manufactures of vulcanized and indurated fiber..lbs.	54,752	13,208	135,384	11,462	303,384	89,832	275,388	61,972
Cash-register and adding-machine paper.....lbs.	433,362	41,247	421,011	41,677	1,305,848	140,721	2,453,451	240,961
Other paper and paper products.....	.....	713,971	.....	449,201	.....	3,011,707	.....	3,170,167

WOOD PULP AND PAPER STOCK

Sulphite wood pulp ....tons	1,828	108,386	2,760	149,959	10,063	576,779	22,926	1,185,455
Soda wood pulp ....tons	134	9,720	97	7,671	1,182	93,621	949	76,031
Other wood pulp ....tons	137	6,420	301	24,582	1,196	69,720	3,229	219,108
Rags and other paper stock....lbs.	19,750,140	285,786	6,999,598	121,030	119,955,534	2,319,733	60,456,951	1,126,547

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery.....	.....	198,646	.....	370,830	.....	1,703,558	.....	1,608,082

Indianapolis Paper Demand Slow

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., August 26, 1929.—Virtually all lines of paper show the effects of the season and little improvement is expected until cooler weather.

Paper mills in this section report a continued hand to mouth buying and the volume very light. Jobbers have sufficient stocks, apparently to care for any immediate demand and are content to let the manufacturers carry the load. There is some demand for greeting card stock and other card products.

Print paper demand is about the same, but the local trade is expecting some improvement in the next few days. Country papers particularly have been slow and there is much room for improvement. This is expected to occur shortly with the opening of the fall season. Building papers are slow in moving and little is expected now for the remainder of the year. Wrapping paper and twine demand also has been off for some time. The tendency now is toward more activity.

Corrugated and heavy papers for boxes and cartons are moving in fair quantity. From some of the factories in the north central section of the state where business appears exceptionally good, there is a steady demand. Local and state box factories say orders are increasing and officials express themselves as well satisfied with the volume of business done this summer.

Nicolet Paper Co. Increases Production

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 26, 1929.—In order to take care of increased orders, the Nicolet Paper Company, of DePere, Wis., has placed its second machine in operation. The mill has been run for a long time with one machine but finds the outlook much improved for additional demand. The Nicolet Paper Company is one of the newer concerns of the Fox River Valley, having taken over the former American Writing Paper Company mill.

Glassine and grease proof papers have been manufactured steadily since the new company was organized, and the quality of the product has helped to stimulate a demand. About fifty men were added to the payroll when the second machine was started, and the force now consists of 140 persons.

New York Trade Jottings

F. C. Clark, consulting engineer, of South Manchester, Conn., was a New York visitor early this week.

* * *

The Mendelsohn Paper Company, of Brooklyn, N. Y., has been incorporated with a capital stock of $10,000.

* * *

A. E. McMaster, general manager of the Powell River Company, Ltd., is visiting New York in the interest of his organization.

* * *

The New York Burlap and Jute Exchange is to open at 80 Wall street, in September for future trading in jute, burlap, sugar bags, etc.

* * *

W. F. Goldsmith, of Arthur D. Little, Inc., Cambridge, Mass., was a recent visitor to the TAPPI offices, 18 East 41st street, New York.

* * *

R. S. Kellogg, secretary of the News Print Service Bureau, has returned to headquarters after visiting the paper mills in Newfoundland.

* * *

Karl Luger, formerly with the Aluminum Company of America, is now on the staff of the Ludlum Steel Company, of 230 Park avenue, New York.

* * *

R. V. Holland has resigned his post of electrical engineer for the Three Rivers mill of the International Paper Company and is now residing in New York City.

* * *

Archibald R. Graustein, president of the International Paper Company, New York, and Mrs. Graustein, have returned to New York after an enjoyable European trip.

* * *

The regular weekly luncheons and meetings of the New York Division of the Salesmen's Association of the Paper Industry, which were suspended during the summer holidays, will be resumed on Monday, September 9.

* * *

The Saranac Pulp and Paper Company, of Plattsburgh, N. Y., have appointed the Ajax Advertising Agency, Inc., New York City, to handle their advertising. This agency will also handle the advertising for Saranac's affiliated companies, including Norstrand Manufacturing Company, Hy-G Products, Inc., and Hunt's Modern Paper Products, Inc.

* * *

The National Container Company, of Long Island City, N. Y., has acquired the business of the Hygrade-Eagle Corrugated Paper Products Corporation, according to an announcement by Samuel Kipnis, president. As part of the recapitulation plan stockholders of the National Container Corporation will be asked to approve an increase in the authorized capitalization from 111,000 shares of common stock to 140,000 shares. Of the additional 30,000 shares 12,000 will presently be outstanding and will be used to pay in part the consideration involved in the acquisition of the Hygrade-Eagle company. Net profits of Hygrade-Eagle Corporation for 1929 are estimated at $90,000, and those of National Container Corporation at $220,000 after preferred dividends. These earnings, together with estimated savings of $45,000 effected by the merger, should, according to Mr. Kipnis, result in total earnings for National Container Corporation of more than $350,000 for 1929, equivalent to $4.30 a share on the 82,000 shares of common stock outstanding.

* * *

Negotiations for a $1,000,000 merger of paper box manufacturers with an annual output of more than 100,000,000 boxes are under way. Consolidation of the Pakwell Paper Box Company, of 160 John street, and the Atlasko Paper Box Company of 120 Forrest street, both of Brooklyn, was completed last Friday and Max Weiner, secretary of the new company, said further consolidations were to be effected. "We are negotiating with one other Brooklyn and one Manhattan concern to bring the combined business under one roof in Brooklyn," Mr. Weiner said. "We hope to complete all details this year. A plant probably will be erected next year." Israel Sandler, president of the old Pakwell Company, is president of the combined Pakwell-Atlasko concern. Samuel Rosenbaum, treasurer of the old Atlasko Company, is vice president, Jacob Kirschenbaum is treasurer and Mr. Weiner is secretary. Nathan Salwen, who had a large block of shares in the old Pakwell Company, sold his holdings to the combined interests. Until the entire merger is completed the Brooklyn concerns will continue their operations in their old quarters, Mr. Weiner said.

Paper Technologists Meet

The Paper Technologists Club of Kalamazoo held its annual election of officers at the regular monthly meeting held at the Columbia Hotel on Wednesday evening, August 14. The election resulted in the following men being named to office; President, Elbert G. Milham, Bryant Paper Company; Vice-President, Maxwell D. Bardeen, Lee Paper Company, Vicksburg; Secretary-Treasurer, W. Kent Kidder, Allied Paper Mills.

Following the election, Mr. Milham named E. Frank Whittington of the Sutherland Paper Company, Chairman of the Program Committee, and C. C. Schnieder of the Hawthorne Paper Company, as publicity agent for the club.

Due to the election, there was no regular program planned for the meeting, and a round table discussion was held on the subject of dry versus liquid alum in the paper mill.

In addition, the general policies and plans of the club for the coming year were discussed by the members. It was decided to make an intensive study of the present methods used in the analysis of raw materials, in an attempt to develop if possible a standard method for the analysis of each raw material used. All of the laboratories in the Valley are planning to cooperate in this work in order to determine which method will give the most accurate results. The first material to be studied will be rosin size.

The next meeting of the club will be held on Wednesday, September 11.

News of the Wisconsin Paper Industry

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 26, 1929.—The Thilmany Pulp and Paper Company, of Kaukauna, Wis., has donated several lots to the city of Kaukauna to be used for park purposes. The offer was made through M. A. Wertheimer, president of the company, and was accepted by the city council.

Employes of the Kimberly-Clark Corporation, Neenah, Wis., who are golfers, will take part in an annual tournament planned for September 7. Qualifying rounds will be played, followed by matches to decide the champion of the company. The tournament is to be held each year.

Two men were injured at the Hoberg Paper and Fibre Company plant, Green Bay, Wis., last week when a pile of 4-foot pulpwood toppled over on them. Paul Momaerts suffered several broken ribs and body bruises, and Michael Brown had cuts and bruises. Both are obliged to be away from their work temporarily.

T. J. Burke Honored at Evanston

Thomas J. Burke, secretary-treasurer of the Cost Association of the Paper Industry 18 East 41st Street, New York, has for the past two weeks been attending the National Institute for Commercial Executives and Trade Executives at Northwestern University, Evanston, Ill.

Mr. Burke was elected vice president of the student body for the session.

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Henry J. Berger
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Editor Technical Section

Herbert J. Laughton
Associate Editor

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Editor Cost Section

Reginald Trautschold, M. E.
Power Engineering Consultant

Member A. B. C. Audit Bureau of Circulations

Vol. LXXXIX New York, August 29, 1929 No. 9

COMING EVENTS

Technical Association of the Pulp and Paper Industry, annual fall meeting, Richmond, Va., September 24 to 26 and Washington, D. C., September 27.

National Paper Trade Association of the United States, annual fall convention, Congress Hotel, Chicago, October 7 to 9.

Paper and Pulp Section of the National Safety Council, Eighteenth Annual Safety Congress, Stevens Hotel, Chicago, September 30 to October 4.

RECORD HALF YEAR IN PAPER EXPORTS

Exports of paper and paper products from the United States during the first half of 1929 were valued at $18,892,239, an increase of 21 per cent over the preceding six months and of 23 per cent over the corresponding six months of 1928 according to the Paper Division of the Department of Commerce. Most classes on the paper schedule shared in this increase, reductions being registered only in a few products, such as cover, blotting, tissue and crepe, and greaseproof papers, paper hangings, and manufactures of indurated and vulcanized fiber. An important element in the increase of the 1929 shipments was the transfer of over-issue newspapers from the schedule covering paper base stocks to the paper schedule. This one class alone accounted for an increase of nearly $1,000,000 in the 1929 exports. Of course, this change also involved a corresponding decrease in shipments entered under the classifications "rags and other paper stocks."

A notable feature of the 1929 exports was the unprecedentedly high shipments during the first three months of the current year, followed by a decline during the second quarter. Exports during the period January to March, inclusive, reached a total valuation of $10,173,523, an increase of 23 per cent over the preceding three months and of 35 per cent over the corresponding three months in 1928. Shipments during the second quarter of the current year, however, have failed to maintain that high level, although at the same time they exceed shipments made during the corresponding quarter in 1928 by 13 per cent. The decline during the second quarter was not confined to any particular line or lines, but was distributed throughout the entire group with the heaviest reductions falling in newsprint, surface-coated, wall, and writing papers, and paper and strawboards, exclusive of bristols and boxboards. The last mentioned product, together with over-issue newspapers, sheathing papers, and wall boards constituted the few exceptions to the general downward trend.

The average value of the different classes exported was on the whole lower than during 1928, this being particularly noticeable in the items in which the most important gains in the volume of shipments are recorded. This is merely a continuation of the trend of recent years, and indicates unmistakably that the paper importing countries on the whole give greater consideration to the price than to the quality of the product. A striking example of this preference is found in writing paper exports, which have been increasing more or less steadily in volume since the early part of 1926. This expansion has been accompanied by a decline in the average value of the shipment from $16 per 100 pounds in 1926 to $14.50 in 1927, $10.97 in 1928, and $10.63 during the first half of the current year. While so great a decline has not been recorded in the value of the other important classes, any outstanding increase in the volume of the shipments is generally accompanied by a lowering in their average value.

Exports of paper base stocks from the United States are relatively a small item compared with paper exports, although they have been increasing steadily during the past few years. Shipments during the first six months of the current year in the majority of instances were more than double those of the corresponding six months in 1928. Exceptions were shipments of soda pulp, which declined by 20 per cent, and of rags and other paper stock, which show a decrease of 50 per cent. The decline in the latter class, however, was caused by the transfer of over-issue newspapers to the paper schedule. Had these shipments been included, as they were in 1928, exports of rags and other paper stock would have shown an increase of 8½ per cent, while the value of the entire group would have shown an increase of nearly 20 per cent instead of a decrease of 7 per cent.

Imports of paper and paper products into the United States during the first six months of 1929 were valued at $77,305,244, an increase of 2 per cent over the corresponding period last year. While this amount far exceeds the value of the exports, it will be noted that the one item, news print, accounts for $68,470,491, or nearly 90 per cent, of the total receipts. Imports of this particular class increased 9 per cent in volume as compared with the first half of 1928, although owing to a reduction in price last summer the value of these receipts show a gain of only 1 per cent. Imports of other classes of paper were also generally higher, the total value of these classes having risen from $8,364,423 during the first six months of 1928 to $8,834,753 during the corresponding six months of this year, an increase of approximately 5 per cent. Among these minor items the heaviest increases are to be noted in imports of kraft wrapping, tissue, wall, and greaseproof papers. Smaller gains were also registered in receipts of other wrapping papers, writing paper, surface-coated paper, and boards. Contrary to the tendency noted in the export shipments, the average value of imports shows an inclination to hold firm or to increase rather than decrease.

Closely approaching paper in value are importations of paper base stocks. Receipts during the current year have so far reached a total value of $54,892,234, of which $6,190,531 represents pulpwood, $41,610,900 mechanical and chemical wood pulps, and $7,090,803 other base stocks, such as rags, waste paper, waste bagging, old rope, etc. The outstanding increases so far this year have been in importations of chemical pulp. Receipts of ground wood and rags have barely held their own, while imports of waste bagging and paper and of pulpwood have declined, the latter by 20 per cent.

The average value of these importations has held fairly steady, with perhaps a slight upward tendency noticeable. Imports of bleached sulphate would appear to have improved considerably in quality, since the volume of these receipts has increased only by 43 per cent, while the value shows an increase of 72 per cent.

The foreign paper trade of the United States so far during the present year may be considered encouraging. While exports during recent months have been decreasing as compared with the opening months of the year, they nevertheless show a consistent gain when comparison is made with the corresponding months in preceding years. These increases also are not limited to a few leading items but are well distributed throughout the group, and mark a healthy growth in our export paper trade. Increases in imports of paper and paper base stocks generally reflect the tendency of American mills to concentrate on the production of medium grade papers in preference to news print and other low grade papers.

Specifications for Sheathing Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 28, 1929.—In order to obtain data which might be used in the formulation of standards specifications for sheathing paper a study was made by the Paper Laboratory of the Bureau of Standards of some of the important properties of 36 samples of building papers made by 14 different manufacturers. These samples consisted of asphalt-saturated papers, paraffin-saturated papers, laminated, asphalt-treated papers, and machine-finished papers. The papers were tested for weight, thickness, tensile breaking strength, bursting strength, tearing resistance, water resistance, and air permeability.

The papers differ considerably in weight and thickness, and also in density. Only in the case of papers of like structure does there appear to be any definite relation between weight and thickness, or between either of these and other properties. A fair degree of parallelism exists between the tensile breaking strength and the bursting strength. In each of these two properties there were found approximately fourfold differences between extremes. Some of the strongest papers are among the thinner ones and some of the heavier papers are comparatively weak. The papers differ in strength retention after wetting. The time required for water to penetrate through the sheet differs between wide limits, from less than a minute to several days. In the rate of flow of air through the papers there are relatively large differences, although most of the papers are fairly resistant to air, a few being air-tight within the ability of the testing method to detect permeability.

It is concluded from the test data and supplementary information about sheathing paper that the thickness of building papers is relatively unimportant, that strength is of significance chiefly in handling the paper during erection, that water resistance and impermeability to air are of prime importance in making a wall weatherproof, but that most commercial sheathing papers are capable of performing this function sufficiently well.

Shipping Gummed Paper to Manchuria

DAYTON, Ohio, August 27, 1929.—Shipment of 1,000 pounds of gummed paper is being made to Harbin, Manchuria, by the Gummed Products Company of Troy, 20 miles northeast of this city. The company has no definite information concerning the ultimate destination of the shipment after it reaches Harbin, it is stated, as the order was received from an export corporation. Harbin is one of the more important cities on the main railway in Manchuria, which just now is in the throes of an incipient war, with the Russians and Chinese at sword's point.

In any event, it is quite unusual for a Miami Valley concern to ship paper to this far-off country and the receipt of the order aroused considerable interest. In all probability it will mean larger shipments in the future.

Paper Section Safety Convention

The eighteenth annual Safety Congress of the National Safety Council will be held at the Stevens and Congress Hotels, Chicago, September 30, to October 4. The meetings of the Pulp and Paper Section will be held at the Stevens Hotel, October 2 and 3.

The program is as follows:

TUESDAY MORNING, OCTOBER 2

9:30 Reports from Regional Directors. (Two minutes each).
10:00 Irreducible Minimum and What Then?
E. W. Corn, Field Representative, National Safety Council, Chicago.
10:45 Reducing Accident Frequency by Better Housekeeping.
F. P. Stanley, Vice-President and General Manager., Glens Falls Indemnity Company, Glenns Falls, N. Y.
11:30 Discussion.

WEDNESDAY MORNING, OCTOBER 2

9:30 Report of Nominating Committee and Election of officers.
9:45 Questions and Answers.
Led by Samuel Pruyn, Supvr. of Employment, Finch, Pruyn & Co., Inc., Glens Falls, N. Y.
And D. D. Thirkield, Chairman, Safety Committee, Sorg-Oglesby-Smith Paper Company, Middletown, Ohio.

THURSDAY MORNING, OCTOBER 3

9:30 Paper Mill Safety and Efficiency.
N. H. Bergstrom, Treas., Bergstrom Paper Co., Neenah, Wis.
10:00 Discussion
10:15 The Health Factor in Paper Mill Accidents
J. J. Plzak, Safety Engr., Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.
10:45 Discussion.
11:00 Guarding of Paper Mill Machinery.
Bagley & Sewall Co., Watertown, N. Y. (Speaker to be announced later.)
11:30 Discussion.

THURSDAY LUNCHEON, OCTOBER 3

1. Data on the Contest
George E. Burns, Safety Engr., National Safety Council, Chicago.
2. Presentation of Trophies to Contest Winners.

Shipping Paper Making Materials by Water

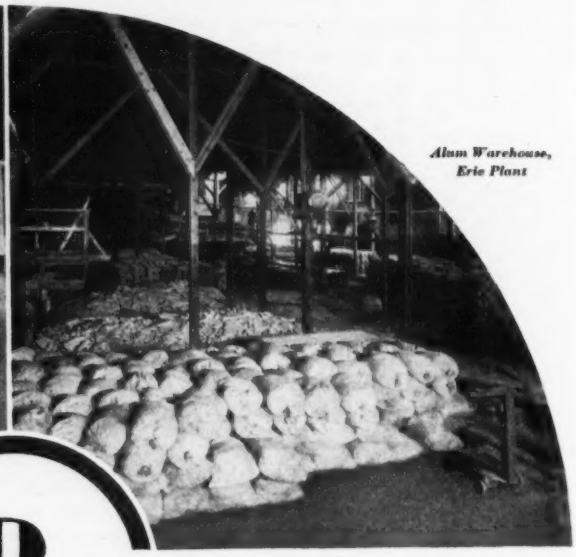
[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., August 26, 1929.—A large cargo of paper mill screenings consigned to the plant of the Oswego Board Corporation was received here this week. The cargo was the second shipment of the material brought here by water from the lower St. Lawrence for the Carlisle industries and the methods with which the goods are being handled indicates that the water route will supplant rail in transportation in the near future. Two thousand tons of screenings in bales were carried by the steamer which was loaded at Port Alfred Quebec. The screenings are part of the materials which go into the pulp from which a high grade insulating board is made at the plant in this city. The next cargo to be brought here will be wood pulp for the plant of the Taggart-Oswego Paper and Bag Corporation which a few weeks ago received the initial shipment over the new waterway.

Option on Litchfield Paper Co. Property

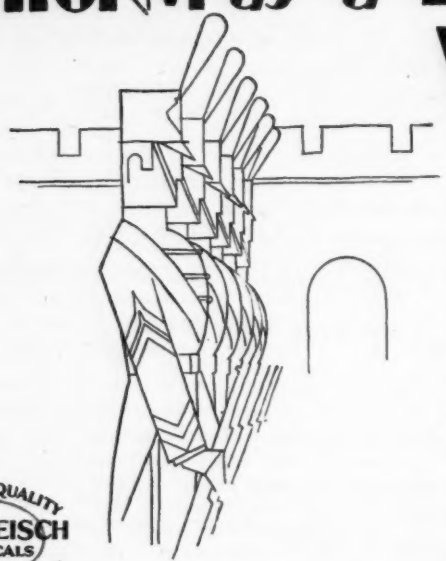
FRANKFORT, N. Y., August 26, 1929.—An option has been obtained on the property of the Litchfield Paper Company with privilege to purchase for $6,000 by the local Kiwanis Club. The present holder is the First Trust and Deposit Company, of Syracuse, which took the property over on mortgage foreclosure proceedings and the option received this week was signed by M. F. Lane, one of the largest bondholders. It is proposed by the club to raze the mill buildings thereby eliminating smoke nuisance and fire hazard. There is also a possibility that the municipality may take the property over and annex it to its park land, affording a direct entrance from the central part of the village.

Alum Warehouse, Chattanooga Plant



Alum Warehouse, Erie Plant

UNIFORM as a RANK of WEST POINTERS



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Edited by
RONALD G. MACDONALD, Secretary

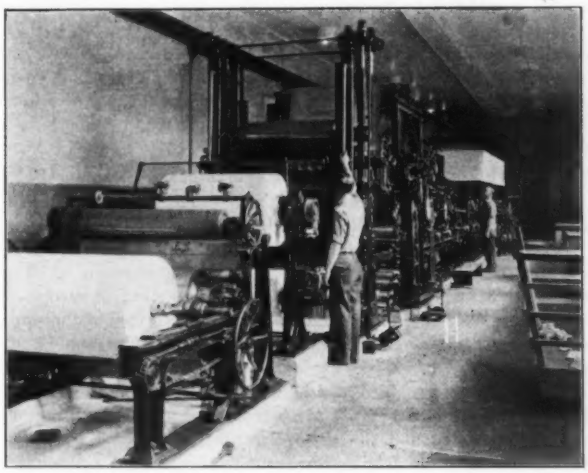
Brown Company Experimental Paper Mill

In order to develop and perfect new grades of pulp and paper without interferring with the production of the big machines at its Riverside Mill, which have been previously used for this purpose, Brown Company has designed and constructed an unusually large experimental paper mill. This is operated by the Research Department with the advice and counsel of Superintendents Corbin and Brosius of the Paper Division, who keep in close touch with all the problems.

The machine is a special 44-inch combined Fourdrinier and cylinder paper machine supplied by the Pusey and Jones Company of Wilmington, Delaware. It is designed to make 40 to 200 feet of dry paper per minute. Unlike many experimental machines, it is in no sense a toy, for in 24 hours it can actually make about six tons of merchantable paper. At present no cylinders are in operation, but eventually five or six will be installed, in order to provide all possible combinations in experimenting upon multiplex sheets. It will make papers as thin as a 15-lb. Kraft basis weight or as thick as a 300-lb. sheet, when all the cylinders are installed. It is provided with many special devices to permit experimentation over a wide range of papermaking conditions.

The Fourdrinier wire is 35 feet long and 43 inches wide, and all of the succeeding units are in proportion. The sheet passes over a Millspaugh suction couch roll and thence to the second and third presses, the upper rolls of which are face stone, whereas the lower ones are rubber-covered. Between the first section of dryers comprising nine 30-in. rolls and the second section of four rolls of the same diameter is a size press. The steam to the dryers is regulated by the Penberthy and Stickles system. Beyond the cylinder dryers is a Yankee dryer for finishing papers on one side. The calenders, reels, slitters, and winders have been designed in proportion. Exceptional attention has been given to installations for the purification of the air and the filtration of the water used in the mill, and to power equipment for driving the machine units. In the latter the Olson control is used. The disposal of the white water and the regulation of consistency have also been given careful thought. Special recording instruments provide control for the beaters and dryers.

Auxiliary rooms comprise a pulp storage room, a size room, a color room and a beater room equipped with three 1000-lb. Hollanders, one 500-lb. Hollander of the latest design, furnished by the E. D. Jones Company, and a precision-type Pony Monarch Jordan furnished by the Noble & Wood Machine Company.



DRY END OF EXPERIMENTAL PAPER MACHINE

Glenn Cole, machine tender, and Adelard Lacroix, back tender.

WET END OF EXPERIMENTAL PAPER MACHINE

James Howell, boss machine tender; Glenn Cole, machine tender, and Adelard Lacroix, back tender.

Experimental Production of Roofing Felts

By Merle B. Shaw,[1a] George W. Bicking,[1b] and O. G. Strieter[1c]

I. Introduction

The paper felts used as the base of asphalt roofing materials are made of rags, with or without the addition of substitutes. Owing to the increased cost of rags in recent years, more extensive use of substitute materials in admixture with the rag stock seems inevitable. Accordingly, an investigation to determine the relative value of different fiber compositions on the life and serviceability of roofing materials is being conducted at the Bureau of Standards. The production of the experimental felts described in this publication is a part of that investigation.

Paper felts composed of varying mixtures of the usual felt-making fibrous materials, and with a high content of low-grade substitutes, were needed for the investigation. Because of the high content of substitute materials desired, the felts could not be obtained commercially. Since considerable economy could be effected by the use of the substitutes, if the life of the felts in service would not be materially impaired thereby, it was desired to include papers containing them. The manufacture of the papers was undertaken at the bureau at the request and with the cooperation of the Manufacturing and Industrial Research Committee of the Asphalt Shingle and Roofing Institute. The papers produced were subsequently converted into asphalt roofing in a commercial roofing mill.

II. Description of Commercial Manufacture of Roofing Felts

For the reader not familiar with the commercial manufacture of asphalt roofing felts the following brief description is given:

The paper felts are generally formed on a cylinder paper-making machine.[2] The processes of manufacture are similar to those employed in paper making in general and consists, therefore, of pulping the fibrous material and converting the prepared pulp into a dry, continuous sheet on the paper machine. The felt is impregnated with asphalt by running the sheet through a tank containing asphalt maintained at a high temperature (350 to 400° F.). The amount of saturant absorbed is dependent on the time the sheet is immersed and the absorptive quality of the felt. After leaving the tank the felt passes around steam-heated rolls which drive in the saturant and remove the excess, so that the surface is dry when the sheet leaves the machine.

The coating is applied by steam-heated coating rolls. Melted asphalt is flowed on the upper side of the sheet and spread uniformly by the upper roll. The excess quantity is allowed to flow into a small tank underneath, where it is picked up by the lower coating roll and spread on the under side of the sheet.

The coated felt while hot is passed under a hopper, where particles of talc, sand, or other granular material are sifted on the surface, and then around cold rolls which firmly press the mineral matter into the hot, soft coating. After cooling, the felt is either wound into rolls or cut into sheets as requirements demand.

Additional information on the properties of asphalt saturant and coating is included in the data on the saturating and coating of the experimental felts.

III. Semicommercial Paper-Making Tests

1. Paper-Making Materials

The paper felts must have sufficient strength not to break during the processes of saturation and coating. They must also be sufficiently porous in structure to absorb the proper quantity of the asphalt saturant. The kind and proportion of substitutes that can be employed depend, therefore, on the physical properties of the materials.

The paper-making materials used in the experimental felts were No. 2 roofing rags, old jute and manila bagging, old newspapers, and finely ground wood sawdust.

2. Equipment

Although the paper mill of the bureau is equipped for making paper on a semicommercial scale under practical mill conditions, it does not include a cylinder, or felt-making, machine and is therefore not well adapted to making heavy papers of the roofing-felt type. The equipment employed was that in general use in the bureau mill and consisted of a 50-pound wood tub beater, with manganese-bronze bars and plate; a 300-pound tile-lined beater, with phosphor-bronze bars and plate; a small Jordan refiner, with iron bars; a 4-plate screen; and a 29-inch Fourdrinier paper-making machine, with wire 33 feet long and having two presses, nine 15-inch driers, a small machine stack of 7 rolls, and a reel.[3]

3. Procedure

The rags supplied for the tests had been cut into small pieces previous to shipment. The subsequent manufacturing processes consisted, therefore, in beating the raw materials to a pulp and converting the prepared stock into a sheet of paper, or felt.

The strength of the felt depends not only on the physical properties of the raw materials, but also upon the paper-making processes controlling the length of the fibers and the formation of the sheet.

(*a*) Beating.—The procedure followed in the beating treatment of the different furnishes was established by preliminary experimental tests in the 50-pound beater. The pulps used in the felts described herein, however, were prepared in the 300-pound beater.

Six beaters of stock were prepared. The furnishes employed were—

No. 1, 100 per cent rag.

No. 2, 60 per cent rag, 30 per cent newspaper, 10 per cent sawdust.

No. 3, 10 per cent rag, 60 per cent newspaper, 30 per cent sawdust.

No. 4, 60 per cent rag, 20 per cent bagging, 20 per cent newspaper.

No. 5, 66.7 per cent bagging, 33.3 per cent newspaper.

No. 6, 100 per cent bagging.

The beating intervals for the furnishes were 5½, 2¾, 1, 5 1/0, 4¾, and 6¼ hours respectively.

The rags and bagging for each beater were prepared first and the substitute materials were added later. Owing to the small quantity of rags in lot No. 3, the rags were prepared in the 50-pound beater and transferred to the 300-pound beater for the final beating and mixing. The beating interval given for this lot is that in the larger beater. The rags and bagging of lot No. 4 were treated together.

To produce a felt of open texture with good absorptive quality respecting impregnation with asphalt, vigorous and rapid beating of the stock, with comparatively little hydration, was required. The beater roll was, therefore, lowered as rapidly as the capacity of the motor would permit. The beating progress could doubtless have been accelerated, however, without impairing the quality of the stock.

Prolonged beating causes fibers to disintegrate or split longitudinally into fine fibrillæ. The frictional action in the beating pro-

[1a] Paper technologist, U. S. Bureau of Standards, Washington, D. C.; member TAPPI.
[1b] Paper maker, U. S. Bureau of Standards, Washington, D. C.
[1c] Research associate of the Manufacturing and Industrial Research Committee of the Asphalt Shingle and Roofing Institute.

[2] The authors know of only one commercial mill using a Fourdrinier paper machine in the manufacture of roofing felt. The equipment of that mill included the Fourdrinier machine, but not a cylinder machine, before roofing felts were made there, which may account for its use.

[3] Photographs of the equipment, except the 300-pound beater, are given in B. S. Tech. Paper No. 340, Caroá Fiber as a Paper-Making Material.

cess also has a gelatinizing effect on the surface of the minute fibrous tissues and causes them to become semicolloidal in state. Such stock is said to be "hydrated," "wet," or "slow." Water drains from it slowly on the paper-machine wire, and the finely divided fibers can, therefore, be shaken into a well-felted, smooth-surfaced sheet. The sheet produced has relatively low porosity, however, and, therefore, could not absorb sufficient saturant to give the fibers the degree of protection required for roofing felt.

The rate at which water drains from the pulp is termed "freeness." Measurement of this property at progressive intervals during a beating operation shows the relative "drainability" of the stock and, therefore, serves as an indication as to the progress of the beating. Since all fibers do not hydrate at the same rate, however, the freeness readings for different furnishes do not necessarily gage their comparative fiber lengths.[4]

The fibers in the beater furnishes, previously listed, differ in physical characteristics and, therefore, in rate of hydrating. Consequently, no attempt was made to beat the pulp to a definite freeness reading in the tests described herein. In a mill running on one grade of raw material, however, freeness measurements would doubtless be an effective method of control in maintaining a uniform product.[5]

(*b*) Paper-Machine Operation—As previously stated, the bureau paper mill is not equipped with a cylinder machine, the type usually employed commercially for roofing felts, nor is the equipment well adapted to the manufacture of thick papers. Experimental difficulties were experienced in using the small Fourdrinier machine owing to the inadequate capacity of the pump and the drying machinery. The felts made were, however, pronounced very satisfactory by experts of the roofing institute.

The prepared stock was pumped from the Jordan refiner directly to the paper machine and converted into a continuous sheet. The limited capacity of the pump necessitated reduction of the width of the sheet to 16 inches in order to obtain the weight desired. A 50-pound felt was originally planned and was made, even with the inadequate pumping facilities, but experimentation showed that a more uniform product could be obtained if the weight was decreased. Accordingly, the weight of the final test felts was reduced to from 40 to 44 pounds.

Difficulty was encountered also in drying the felts. The drying machinery of the bureau's equipment was designed for thin papers, whereas the felts were comparatively thick and held large quantities of water. To overcome the drying difficulties the felts were passed twice over the drying rolls. The moisture content of the finished sheets was about 7 per cent.

IV. Measurements on Finished Waterleaf-Paper Felt

The fiber composition of the beater furnish for each machine run and various measurements on the finished waterleaf or unsized sheet are given in Table 1. The apparatus and methods employed in obtaining the measurements are either described herein or are available in other publications.

Under "mill furnish" is given the percentages by weight of the raw materials furnished to the beater in the manufacture of the felts. The fiber composition of the finished waterleaf paper is shown under "microscopic analysis." The micrscopic determinations were made by the dot-count method, of which an adaptation suitable for paper felt was developed at the bureau[6]. The seeming discrepancies in the composition determined by the laboratory analytical procedure and that given by the mill manufacturing practice can be largely accounted for by the quality of the raw materials. Roofing rags are, in general, the lowest-grade sortings from the mixed-rag collection, and the cotton rags employed (No. 2 roofing rags are classified as cotton) doubtless contained some extraneous fibers. Also sawdust is not clearly distinguishable from ground wood under the microscope and was doubtless therefore reported as ground wood by the analyst.[7] Considering these facts, the results are in good agreement.

Felt weights are given on the basis of 480 square feet. The felts are customarily spoken of as "light," "medium," or "heavy," depending on the weight. Those given in the table are considered medium. The strength tests—bursting, tensile, and tearing—and

[4] A more detailed discussion of the theory of hydration and freeness measurements is given in B. S. Tech. Paper No. 329, Research on the Production of Currency Paper in the Bureau of Standards Experimental Paper Mill.

[5] Philip W. Codwise, The Freeness Test in Roofing-Felt Manufacture, Paper Trade J., 85, No. 4, pp. 52-54, July 28, 1927.

[6] R. E. Lofton, Determination of the Fiber Composition of Roofing Felts, Paper Trade J., 84, No. 14, pp. 57-58, Apr. 7, 1927.

[7] See footnote 6.

TABLE 1.—TEST DATA ON FINISHED WATERLEAF FELT

Felt No.	Mill furnish	Felt composition: Microscopic analysis of waterleaf felt: Rag	Wool	Jute and manila	Chemical wood	Ground wood	Weight (moisture free): Per 480 sq. ft.	Per 100 sq. ft.	Bursting strength	Thickness	Tensile strength: Machine direction	Across mach. dir.	Tearing strength: Machine direction	Across mach. dir.	Ash in dry (moisture free) felt	Pliability on mandrel	Saturation: Kerosene	Calculated asphalt	Xylol test
		P.ct.	P.ct.	P.ct.	P.ct.	P.ct.	Lbs.	Lbs.	Points	Inch	Lbs.	Lbs.	g.	g.	P.ct.		P.ct.	P.ct.	Sec.
A. BUREAU OF STANDARDS PAPER																			
1	100 per cent rag.....	90	5	..	5	..	43.9	9.1	44	0.0428	34	25	496	384	7.09	All satisfactory on 1/8-inch mandrel.	128	164	69
2	60 per cent rag, 30 per cent newspaper, 10 per cent sawdust.	45	5	..	15	35	45.4	9.5	32	.0501	29	18	464	320	5.63	7 of 12 samples cracked on 1/8-inch mandrel.	147	189	61
3	10 per cent rag, 60 per cent newspaper, 30 per cent sawdust.	10	..	..	25	65	44.2	9.2	37	.0541	37	27	384	256	2.07	8 of 12 samples cracked on 4/5-inch mandrel.	154	198	55
4	60 per cent rag, 20 per cent bagging, 20 per cent newspaper.	55	5	15	5	20	40.0	8.3	45	.0419	38	27	512	400	5.79	8 of 12 samples cracked on 1/8-inch mandrel.	132	168	66
5	66.7 per cent bagging, 33.3 per cent newspaper.	10	..	60	10	20	40.7	8.5	43	.0453	40	31	512	368	5.56	7 of 12 samples cracked on 3/5-inch mandrel.	148	189	37
6	100 per cent bagging...	15	5	80	..	..	41.4	8.6	37	.0495	33	27	512	384	6.04	9 of 12 samples cracked on 1/8-inch mandrel.	171	220	17
B. COMMERCIAL PAPER																			
2	100 per cent rag.....	83	4	6	5	2	49	10.2	45	0.0530	37	19	608	416	6.8	All satisfactory on 1/8-inch mandrel.	160	205	25
3	60 per cent rag, 40 per cent sulphite pulp.	47	2	6	45	..	50	10.4	52	.0534	45	21	768	544	5.3	..... do	149	191	25
10	80 per cent rag, 20 per cent newspaper.	63	9	7	7	14	54	11.2	47	.0681	35	19	752	512	6.0	..... do	189	243	16
13	80 per cent rag, 20 per cent mixed paper.	61	6	18	15	..	51	10.6	46	.0592	38	18	704	496	6.5	..... do	166	212	18
17	60 per cent rag, 40 per cent bagging.	59	7	29	5	..	51	10.6	38	.0582	34	17	688	416	6.4	..... do	171	219	28
22	80 per cent rag, 20 per cent ground-wood pulp.	42	2	28	2	26	47	9.8	42	.0591	35	18	672	464	6.0	..... do	182	234	16

the thickness measurements were made under the standard atmospheric conditions for paper testing, 65 per cent relative humidity and 70° F. temperature, and by standard methods.[8]

Data on the pliability and the saturability also are necessary in determining the value of roofing papers and similar materials, therefore measurements of these qualities were included.

The pliability test consisted in bending 1-inch strips of the dry felt over mandrels at a uniform rate and recording the number of strips that cracked the diameter of the cylinder on which the cracking occurred. (The pliability test for saturated felts is on moistened samples.[9]) The strips were cut lengthwise from the rolls and the bending was through an arc of 180° in two seconds of time.

The kerosene and xylol tests were made to determine the saturating quality of the felts. The methods used were those rocommended by the Prepared Roofing Association some years ago.[10]

The object of the kerosene test was to obtain a figure for the maximum saturating capacity of the felts. A sample of the dry felt was saturated with a measured volume of kerosene in order to determine the amount of voids. From the results obtained the theoretical maximum per cent of asphalt saturation of the sheet was computed. The computation involved the weight of the sample, the volume of kerosene the sample absorbed, and the specific gravity of asphalt, which was assumed to be 1.05. In Table 1 the maximum saturating capacity is reported in two ways, namely, under the first caption as the saturation capacity expressed in terms of kerosene, and under the second caption as calculated asphalt.[11]

The xylol test supplements the kerosene test and has for its purpose the ascertainment of the speed with which saturation takes place. The test consisted in timing the rate of rise of the xylol by capillarity in a strip of the felt, one end of which was immersed in the xylol. Test strips 15 mm wide and of suitable length were cut lengthwise from the sheet, and pencil lines were drawn across at 1 and 4 cm from one end of each. The time required for the xylol to rise the 3 cm intervening between the marks was noted and is reported in the table as the xylol test for the sample under consideration.

V. Saturated Felts

1. Method of Saturating Paper Felts

The felts were saturated by a roofing manufacturer using a regular large-scale production roofing machine. The objective was to keep the saturation around 140 per cent, based on the weight of the felt. To permit comparison of the test specimens, uniformity of saturation and equal amounts of saturant in all the felts were required. Specifications for asphalt roofing require, in general, that the minimum percentage of saturant by 130 for medium-weight felts and 140 for heavy, hence 140 was arbitrarily chosen for the experimental tests.

Because of the different physical characteristics of the substitutes used, the felts differed considerably in saturating capacities. To keep the saturation of the more porous ones down to the percentage specified was, of course, very difficult and, as Table 3 shows, was not always achieved.

2 Analysis of Saturant Used

The analysis of the asphalt saturant used (for both bureau and commercial felts) is given in Table 2. Most of the tests have been adopted as standard by technical societies, particularly the American Society for Testing Materials and the Prepared Roofing Association, and are described in detail in the publications of those organizations. The methods are also outlined in United States Government Master Specification No. 84.

TABLE 2
ANALYSIS OF ASPHALT SATURANT AND COATING

	Specific gravity at 77/77° F.	Melting point (ring-and-ball method) ° C.	Ductility at 77° F. (5 cm. per minute) cm.	Loss on heating 5 hours at 325° F. %	Matter insoluble in cold CS_2 %	Ash %	Penetration, in 0.01 cm. units: 200 g., 60 seconds at 32° F.	100 g., 5 seconds at 77° F. before heating	100 g., 5 seconds at 77° F. after heating	50 g., 5 seconds at 115° F.
Saturant for bureau felt..	1.001	45.3	48.3	0.07	0.50	0.10	64.0	143.0	116.0	[1]
Saturant for com'l felt...	1.035	45.9	[2]	.18	.20	.23	35.4	121.0	112.0	[1]
Coating for bureau felt..	1.020	97.3	4.3	.02	.45	.10	11.0	16.0	14.0	37.0
Coating for com'l felt...	1.034	100.9	4.15	.16	.70	.48	14.9	19.7	19.4	40.6

[1] Not determined. Too soft. [2] Over 100.

The specific-gravity test is of value for controlling uniformity of supply and for figuring the weight of a given volume. The hydrometer method is generally used to measure the specific gravity, and the standard temperature at which the determination is made is 77° F. for bituminous materials.

The melting point was determined by the ring-and-ball method, which is essentially as follows: The ring is filled with asphalt, the ball is placed on the center of the upper surface, and the completed unit is suspended at a definite depth in a glass vessel of freshly boiled distilled water at 5° C. Heat is applied to the bottom of the vessel at such a rate as to raise the temperature of the water 5° C. each minute. The temperature recorded at the instant the melted asphalt touches the bottom of the vessel is reported as the melting point.

The ductility of an asphalt is defined as the distance to which it will elongate before breaking, when the two ends of a briquet of the material are pulled apart at a specified speed and temperature. When the conditions of test are not specifically stated, the speed and the temperature are understood to be 5 cm per minute at 77° F. (25° C.).

To determine the loss on heating, a sample of the asphalt in a tared container is placed in a constant-temperature oven and maintained at 325° F. (163° C.) for five hours. After cooling, the sample is weighed and the loss due to volatilization computed.

The material that does not go into solution by cold extraction with carbon bisulphide is reported as insoluble matter.

Penetration is defined as the consistency of a bituminous material expressed as the distance that a standard needle vertically penetrates a sample of the material under known conditions of loading, time, and temperature. The combinations of these conditions given in the table are all standard.

3. Measurements on Saturated Felts

Measurements on the saturated felts are shown in Table 3. The methods of test for the saturated felts, except for water absorption, are fully described in United States Government Master Specification No. 295 and the text, Paper Testing Methods to which reference has previously been made (footnote 8).

In the water-absorption test a weighed specimen of saturated felt is entirely immersed in water at 77° F. for 24 hours. A sheet 18 by 18 inches is used in making the test, but since the object of the test is to measure the surface absorption, the treated sheet is trimmed to 12 by 12 inches before its weight is redetermined. Moisture enters more readily through the cut edges of the sheet than through the surface itself, but experience has shown that it does not penetrate more than 3 inches for the period of time immersed in the tests. The reduction in size, therefore, eliminates the effect of seepage through the cut edges; the increase in weight is then figured on the basis of the original material.

[8] These measurements and the ash determination were made by methods described in Paper Testing Methods, published by the Technical Association of the Pulp and Paper Industry, 18 East Forty-first Street, New York, N. Y. The tensile-strength measurements were made on a Scott tensile tester.

[9] Test same as that specified in United States Government Master Specification No. 295; also same as that described in Asphalt and Allied Substances, by Herbert Abraham, 2d ed., corrected, p. 560; 1920.

[10] Reports of Technical Committee of the Prepared Roofing Association; 1923.

[11] Test is fully described in The Kerosene Test for Roofing Felt, by P. W. Codwise, Paper Trade J., 87, No. 12, p. 60; Sept. 20, 1928.

The tearing tests are new to the roofing industry. They were made with the Elmendorf tearing tester, but the standard design of this instrument is not adapted to heavy material, such as roofing and saturated felts, so a modification had to be made before these materials could be tested.[12] The modification consisted in doubling the weight of the swinging sector by the addition of a brass plate and multiplying the scale readings by 2.

VI. Asphalt Roofing

1. Method of Applying Asphalt Coating to Saturated Felt

The asphalt coating was applied to the saturated felt in a roofing mill using large-scale production coating equipment. The method employed was that described on page 1003.

2. Analysis of Asphalt Coating

Analysis of the asphalt coating used (bureau and commercial felts) is included in Table 2. The test methods were the same as those described on pages 1009 and 1010.

3. Measurements on Finished Roofing Felt

The results of the tests on the finished product are given in Table 4. The methods of test used are those described in United States Government Master Specification No. 214 and the references previously given herein.

VII. Commercial Roofing Felt

To permit comparison of the experimental felts with those produced commercially, corresponding measurements on commercial felts, produced for experimental purposes, are included in the tables.

VIII. Summary

1. The data given in the tables indicate that the experimental felts made at the bureau on the small Fourdrinier paper machine compared favorably with those produced commercially on a regular felt-making machine.

2. In general, the strength was greater for the commercial than for the bureau felts. In making the comparison, however, consideration must be given to the facts that a smaller percentage of substitutes was included in the commercial felts and that these felts were much thicker, also. The tensile strength of the bureau product was more nearly uniform in the two directions of the sheet.

3. It will be observed that the experimental and commercial felts of similar fiber composition absorbed practically equal amounts of kerosene, and that the same degree of saturation should, therefore, be obtained for both.

4. The comparatively narrow width of the sheet and short length of the roll caused some inconvenience in running the bureau product over the large commercial machines used for saturating and coating the felts. Because of the fineness of the sawdust particles and the possibility that they might contain some resinous materials, it was thought that the felt containing sawdust might char or burn when subjected to the high temperature of the saturating bath. No such trouble was noted in the saturating operation, however, and apparently the sawdust remained intact.

5. As would be expected, when large amounts of substitutes were included in the fiber composition the experimental felts proved more brittle than regular roofing.

6. The absorptive quality respecting impregnation with the asphalt was as good for the bureau felts as for the commercial ones. Comparison of the theoretical maximum per cent of asphalt saturation (Table 1) with the actual per cent of asphalt in the saturated felts (Table 3) shows that the felts were all undersaturated. The actual saturation was from 81 to 89 per cent of the theoretical maximum capacity for experimental felts Nos. 1, 2, 4, 5, and 6, and 69 per cent for No. 3. Owing to the small interstices in a felt containing fine sawdust, the saturating rate would, of course, be relatively slow, and for a given time the amount of asphalt absorbed would, therefore, be less. The degree of saturation for the commercial felts was from 73 to 79 per cent.

7. Some of the substitutes—for example, bagging and sawdust—made the felts relatively more porous. Such felts absorbed more asphalt and thus afford better protection for the fibers. The greater the percentage of saturant present the more moisture-resistant and, presumably, longer-lived the felts will be in service. If in such cases the initial strength and pliability are sufficient, the felts should prove satisfactory for roofing purposes.

8. The purpose of the investigation was to ascertain whether asphalt roofing felts suffer in serviceability by the addition of substitutes for rag stock. As one of the experimental felts con-

[12] F. T. Carson and L. W. Snyder, Increasing the Capacity of the Elmendorf Tearing Tester, Paper Trade J., 86, No. 13, pp. 57-60; Mar. 29, 1928.

TABLE 3.—TEST DATA ON SATURATED FELT

Felt No.	Felt composition	Weight per 480 sq. ft.	Weight per 100 sq. ft.	Constituents: Felt	Constituents: Bitumen	Saturation of felt	Loss on heating at 105°C. for 5 hrs.	Ash in desaturated felt	Moisture in felt (xylol method)	Bursting strength	Thickness: Saturated felt	Thickness: Desaturated felt	Tensile strength: Machine direction	Tensile strength: Across mach. dir.	Tearing strength: Machine direction	Tearing strength: Across mach. dir.	Pliability on mandrel at 10° C.	Water absorption (at 25° C. for 24 hours)
		Lbs.	Lbs.	P.ct.	P.ct.	P.ct.	P.ct.	P.ct.	P.ct.	Points	Inch	Inch	Lbs.	Lbs.	g.	g.		P.ct.
A. BUREAU OF STANDARDS PAPER																		
1	100 per cent rag.....	106	22	42.9	57.1	133	1.0	7.0	1.2	105	0.044	0.042	63	46	1,200	1,040	All satisfactory (3/8-inch mandrel).	13
2	60 per cent rag, 30 per cent newspaper, 10 per cent sawdust.	115	24	39.1	60.9	156	.9	5.8	.5	92	.052	.049	52	39	1,088	992	4 satisfactory, 1 cracked slightly (3/8-inch mandrel).	9
3	10 per cent rag, 60 per cent newspaper, 30 per cent sawdust.	110	23	42.3	57.7	136	1.5	2.2	1.2	66	.057	.054	58	44	560	608	All cracked badly (3/8-inch mandrel).	12
4	60 per cent rag, 20 per cent bagging, 20 per cent newspaper.	110	23	41.1	58.9	144	.7	6.4	1.0	107	.048	.046	66	49	912	928	3 satisfactory, 2 cracked slightly (3/8-inch mandrel).	10
5	66.7 per cent bagging, 33.3 per cent newspaper.	106	22	37.3	62.6	168	1.3	5.5	.7	85	.046	.044	60	51	896	832	1 satisfactory, 4 cracked slightly (3/8-inch mandrel).	13
6	100 per cent bagging..	110	23	35.8	64.2	179	1.0	6.3	1.2	93	.049	.047	..	..	976	1,024	2 satisfactory, 3 cracked slightly (3/8-inch mandrel).	13
B. COMMERCIAL PAPER																		
2	100 per cent rag.....	139	29	38.1	61.9	163	1.2	7.6	1.6	175	0.057	0.056	78	43	1,888	1,680	All satisfactory (1/8-inch mandrel).	28
3	60 per cent rag, 40 per cent sulphite pulp.	125	26	41.3	58.7	142	1.2	5.2	1.7	183	.053	.053	86	46	1,856	1,520	..... do	35
10	80 per cent rag, 20 per cent newspaper.	149	31	36.1	63.9	177	1.3	6.2	1.6	168	.065	.060	74	39	1,968	1,808	..... do	36
13	80 per cent rag, 20 per cent mixed paper.	139	29	37.7	62.3	165	1.2	6.5	1.4	164	.059	.058	72	37	1,968	1,616	..... do	32
17	60 per cent rag, 40 per cent bagging.	130	27	36.4	63.6	174	1.1	6.6	2.0	153	.055	.054	68	35	1,872	1,504	..... do	37
22	80 per cent rag, 20 per cent ground-wood pulp.	139	29	35.8	64.2	179	1.5	6.5	1.8	163	.062	.059	71	39	1,904	1,520	..... do	37

TABLE 4.—TEST DATA ON FINISHED SATURATED AND COATED FELT

Felt No.	Felt composition	Weight		Constituents				Saturation of felt	Loss on heating at 80° C. for 5 hrs.	Ash in desaturated felt	Bursting strength	Thickness		Tensile strength		Tearing strength		Pliability on ¾-in. mandrel at 10° C.	Water absorption (at 25° C. for 24 hours)
		Per 480 sq. ft.	Per 100 sq. ft.	Felt	Saturant	Coating	Surfacing					Saturated felt	Desaturated felt	Machine direction	Across mach. dir.	Machine direction	Across mach. dir.		
		Lbs.	Lbs.	P.ct.	P.ct.	P.ct.	P.ct.	P.ct.	P.ct.	P.ct.	Points	Inch	Inch	Lbs.	Lbs.	g.	g.		P.ct.
1	100 per cent rag...	216	45	22.2	30.8	42.8	4.2	139	0.0	10.0	186	0.086	0.045	78	58	1,456	1,440	1 satisfactory, 4 cracked badly.	1.8
2	60 per cent rag, 30 per cent newspaper, 10 per cent dust.	206	43	24.5	41.4	31.9	2.2	169	.3	8.1	139	.087	.050	64	48	944	928	All cracked badly.	.7
3	10 per cent rag, 60 per cent newspaper, 30 per cent sawdust.	197	41	23.3	36.9	37.2	2.6	157	.4	4.5	103	.088	.052	62	50	624	704	..... do	.0
4	60 per cent rag, 20 per cent bagging, 20 per cent newspaper.	187	39	24.3	33.8	40.9	1.0	139	.2	8.3	132	.074	.040	75	56	880	960	..... do	2.1
5	66.7 per cent bagging, 33.3 per cent newspaper.	192	40	21.7	36.7	38.8	2.8	169	.3	8.8	130	.085	.045	70	63	976	928	..... do	.0
6	100 per cent bagging	211	44	18.5	36.1	43.1	2.3	195	.1	11.0	139	.090	.045	65	52	1,120	1,152	..... do	.0
	B. COMMERCIAL PAPER																		
2	100 per cent rag...	274	57	17.5	32.1	44.7	5.5	184	0.23	9.0	215	0.105	0.051	78	43	2,112	1,808	3 satisfactory, 1 cracked slightly, 1 cracked badly.	10
3	60 per cent rag, 40 cent sulphite pulp.	269	56	19.7	31.9	42.4	6.0	162	.11	6.9	195	.104	.051	94	52	2,240	1,696	..... do	9
10	80 per cent rag, 20 per cent newspaper.	264	55	21.9	43.5	27.9	6.7	199	.00	8.2	213	.104	.063	86	49	2,896	1,888	2 satisfactory, 1 cracked slightly, 2 cracked badly.	10
13	80 per cent rag, 20 per cent mixed paper.	278	58	19.5	33.5	42.1	5.0	172	.26	8.2	209	.107	.058	80	44	2,416	1,840	3 satisfactory, 2 cracked badly.	10
17	60 per cent rag, 40 per cent bagging.	245	51	20.3	37.1	35.7	6.9	182	.25	8.0	187	.092	.054	80	45	2,160	1,488	3 satisfactory, 1 cracked slightly, 1 cracked badly.	11
22	80 per cent rag, 20 per cent groundwood pulp.	254	53	19.4	40.4	33.3	6.9	209	.00	8.2	193	.094	.057	84	45	2,256	1,648	1 satisfactory, 1 cracked slightly, 3 cracked badly.	7

A. BUREAU OF STANDARDS PAPER

tained as high as 60 per cent of mixed wood-fiber papers and 30 per cent of sawdust, it appears thus far that relatively large amounts of such substitutes can be introduced into the felts without great difficulty in the manufacturing processes. The tests described give considerable information on the behavior of the experimental felts, but the effect of the substitutes on the actual durability of the finished roofing remains to be determined.

9. Additional research on the comparative durability of the felts is in progress. The study includes outdoor exposure of the test specimens and accelerated aging tests in the laboratory. The work is being continued in the chemistry division of the bureau by the research associate of the Manufacturing and Industrial Research Committee of the Asphalt Shingle and Roofing Institute.

10. If the aging tests show that the presence of the substitutes employed does not adversely affect the life of the felts, the use of such substitutes in admixture with rag stock would effect considerable economy. The lower cost of the substitute materials and the saving in time and power required for the paper-making process would both contribute materially to reduce the cost of production.

May Build Book Paper Mill in Idaho

BONNERS FERRY, Idaho, August 23, 1929.—A representative of one of the largest users of book paper in the United States recently spent four weeks in northern Idaho and western Montana, inspecting the pulpwood supply of the Kootenai and Pend d'Oreille forests. He was much impressed with the supply in sight and the possibility of reforestation of the various species of trees suitable for making plup.

He stated that his firm was contemplating establishing a pulp and paper mill in the northwest within the next year and that the possibility for Bonners Ferry or the immediate vicinity for securing it was very good.

He further stated that he had been to Priest River, Newport, Sandpoint, Libby and Troy and that he was certain that there was enough pulpwood in sight for more than fifty years.

Sulphite Digester Lining Thickness

SPECIAL INQUIRY NO. 132

A member writes: "We have either to put in more digester capacity or get more pulp out of our present equipment. We understand that digester linings of less than usual thickness are now being used in some mills in the United States and Canada.

"Our digesters are lined with the standard two course lining about 7 to 7½ inches thick. We are interested in using a thinner lining and would like to have the following information:

1. Do the thinner linings radiate more heat, and if so, what is the increase in steam consumption per ton of product?
2. How much increase in capacity is it possible to expect?
3. Is the circulation in the digester affected by the thinner linings?
4. Is there any increase in the per cent of screening?
5. Is the quality and uniformity of the pulp throughout the digester affected by any of these conditions?
6. Our digesters are standard type 15 feet 0 inches inside diameter. With this size digester how thick should the new type of lining be?"

A compilation of the replies received will be sent, in blank, to all those contributing to this report. Send replies to Secretary, TAPPI, 18 E. 41st street, New York, N. Y.

Fort Howard Paper Company Joins TAPPI

The most recent addition to the rapidly growing corporate membership of the Technical Association is the Fort Howard Paper Company of Green Bay, Wis. This company manufactures crepe, semi-crepe and plain tissue toilet, interfolded toilet tissue and paper towels, tissue napkins, colored crepe papers, tissue excelsior and other specialties. The mill capacity is thirty tons per day and it is equipped with two fourdrinier paper machines. A. E. Cofrin, president and treasurer of the company will be its representative in the Association. Every paper and pulp company in Green Bay is now a member of TAPPI.

New Method for Determining Copper Number*

K. G. Jonas and A. Drössel[1]

From the results of an investigation of the influence of the method of comminution of pulp upon the copper number[2] Jonas proposed as the most suitable method of comminution for the determination of the copper number according to Schwalbe-Hägglund and according to Schwalbe-Braidy, the tearing apart of the pulp softened in water. This method of communication is also suggested to be used in place of the other usual methods (rasping, picking or cutting) in all cases in which pulp suspended in water is to be investigated analytically.

While in the determination of the copper number according to Schwalbe-Hägglund, in which, according to the above mentioned proposal, 50 cc. of water are used for the softening process and 200 cc. of water are used for the quantitative transference of the pulp from the first container to the heating flask, in the determination according to Schwalbe-Braidy—in spite of the corresponding increase in the concentration of the carbonate-bicarbonate solution—one must use only 25 cc. of water for the softening process and 15 cc. of water for the transferring the pulp to the Erlenmeyer flask. With suitable care the comminution pulp to the Erlenmeyer flask. With suitable care the comminuted of water; still the method requires considerable skill, care and loss of time.

Because of this it seemed desirable to work out a suitable modification of the Schwalbe-Braidy method which would permit the transference of the pulp to the Erlenmeyer with a larger amount of water.

For this purpose the first experiment involved an increase in the amount of water so that, with a constant amount of copper sulphate solution (10 cc.), only 170—110 cc. of the original Braidy carbonate-bicarbonate solution (130 grams of sodium carbonate and 50 grams of sodium bicarbonate per liter of solution) were used and the remaining 20—80 cc. necessary to make up the original volume of 190 cc. were replaced by water.

Wenzel and Köppe[3] have previously reported similar experiments, using rasped pulp, on the influence of such changes in concentration upon the copper number. They used one half the volume of liquid (100 cc.) and found that the partial substitution of the carbonate-bicarbonate solution by water scarcely influenced the copper number. A summary of their results is given in Table 1.

TABLE 1

Copper sulphate solution	Carbonate-bicarbonate solution	Water	Average copper number
5 cc.	95 cc.	0 cc.	3.59
5 cc.	70 cc.	25 cc.	3.56
5 cc.	60 cc.	35 cc.	3.66
5 cc.	50 cc.	45 cc.	3.56
5 cc.	40 cc.	55 cc.	3.51

In order to determine whether the same relations held in working with the 200 cc. solution previously proposed by Jonas, the copper number determination was carried out with a rasped pulp, which had practically the same copper number (3.63 by the original Braidy method) as the pulp used by Wenzel and Köppe (3.59). The copper numbers obtained are given in Table 2.

TABLE 2

Copper sulphate solution	Carbonate-bicarbonate solution	Water	Copper numbers Range	Average
10 cc.	190 cc.	0 cc.	3.48-3.80	3.63
10 cc.	170 cc.	20 cc.	3.37-3.60	3.48
10 cc.	150 cc.	40 cc.	3.29-3.72	3.50
10 cc.	130 cc.	60 cc.	3.32-3.46	3.40
10 cc.	110 cc.	80 cc.	3.53-3.69	3.59

These copper numbers show, in agreement with the observations of Wenzel and Köppe, only slight variations from the original Braidy copper number, but rise and fall arbitrarily with increasing amounts of water.

From these considerations, it seemed desirable to retain the ratio of copper sulphate: carbonate-bicarbonate of the original Braidy solution, 5 :95 or 10 :190, and to add the amount of water necessary for softening and quantitatively transferring the pulp to the 200 cc. of the original Braidy solution.

In order to determine the influence of this change in working conditions upon the copper number, there were first employed 150 cc. of water for softening and transferring the pulp, so that one worked with a total volume of 350 cc. (200 cc. of the original Braidy solution and 150 cc. of water). Since considerable amounts of copper oxide appeared in this experiment, a second experiment was carried out, using 125 cc. water with this decrease in the amount of water there was a decrease in the amount of copper oxide which separated. This separation of copper oxide did not cease until the volume of water was decreased to 100 cc. The experiment with only 100 cc. of water also gave a considerable increase in the copper number; in the case of the experiments with 125 and 150 cc. of water, the decrease from the original Braidy copper number was very marked, as may be seen from Table 3.

TABLE 3

Copper sulphate solution	Carbonate-bicarbonate solution	Water	Copper number Range	Average
10 cc.	190 cc.	150 cc.	2.95-3.00	2.97
10 cc.	190 cc.	125 cc.	2.89-2.99	2.95
10 cc.	190 cc.	100 cc.	3.39-3.43	3.41

That a marked decrease in the copper number occurs when working in higher dilutions has recently been shown by Richter[4], although under quite different conditions. The Braidy copper number which he obtained by the use of 250 or 500 cc. of water was lower than that determined by the Schwalbe-Hagglund method and this, in turn, was lower than that obtained by the original Braidy method.

As a result of these experiments, the results which are reported in Table 4 were obtained by using only 100 cc. of water for preparing and transferring the cellulose and with 200 cc. of the original Braidy solution.

TABLE 4

Pulp	Copper number Schwalbe-Braidy, modified Range	Average
Sulphite, bleached 1	2.01-2.16	2.06
Sulphite, bleached 2	2.34-2.44	2.39
Sulphite, bleached 3	2.13-2.27	2.20
Sulphite, bleached 4	2.88-3.00	2.96
Sulphite, bleached 5	3.38-3.67	3.54
Sulphite, bleached 6	3.36-3.66	3.52
Sulphite, bleached 7	3.49-3.72	3.63
Sulphite, unbleached	1.96-2.04	2.00
Rayon 1	1.40-1.52	1.45
Rayon 2	1.20-1.22	1.21
Soda, bleached	5.28-5.47	5.36
Soda, unbleached	0.61-0.63	0.61
Straw 1	2.08-2.18	2.14
Straw 2	2.39-2.57	2.48
Cotton half stuff, bleached	2.48-2.51	2.50
Hemp half stuff, bleached	1.11-1.24	1.18

For comparison, the copper numbers of the same pulps were determined by the previously proposed change of the Braidy method (10 cc. copper sulphate solution, 150 cc. carbonate-bicarbonate solution, made up to 190 cc. with addition of 40 cc. of water, or a total liquid volume of 200 cc.) and also according to Schwalbe-Hägglund. The results are given in Table 5. Only the averages are given; the original table contains four individual values for the Schwalbe-Braidy and two values for the Schwalbe-Hägglund method.

* Translated from Papierfabrikant 27, Fest- und Auslandheft (No. 24A): 109-112 (1929), by Clarence J. West.

[1] Institut für Cellulosechemie der Technischen Hochschule Darmstadt.

[2] Jonas, Z. angew. Chem. 41: 961 (1928).

[3] H. Wenzel and E. Köppe, Tech. Chem. Papier- und Zellstoff-Fabrikation 25: 77 (1928).

[4] E. Richter, Wochenblatt. Papierfabr. 60: 261 (1929).

TABLE 5

Pulp	Copper numbers	
	Schwalbe-Braidy	Schwalbe-Hägglund
Sulphite, bleached 1	2.20	2.25
Sulphite, bleached 2	2.40	2.14
Sulphite, bleached 3	2.27	2.06
Sulphite, bleached 4	3.69	2.73
Sulphite, bleached 5	4.01	3.50
Sulphite, bleached 6	4.00	3.32
Sulphite, bleached 7	3.82	3.85
Sulphite, unbleached	2.42	1.89
Rayon 1	1.59	1.59
Rayon 2	1.50	1.28
Soda, bleached	5.66	5.27
Soda, unbleached	0.65	0.60
Straw 1	2.49	2.20
Straw 2	2.55	2.25
Cotton half stuff, bleached	2.80	2.28
Hemp half stuff, bleached	1.31	1.29

Since, for the criticism of the reliability of an analytical method, the range of the individual values and also the greatest variation from the averages value are of considerable importance, these values are given in Table 6, which also gives the differences of the averages values of the two proposed modified methods.

TABLE 6

Pulp	Copper number				Difference in average values of Schwalbe-Braidy copper number Tables 4 and 5
	Schwalbe-Braidy		Schwalbe-Braidy		
	Range	Variation from average	Range	Variation from average	
Sulphite, bleached 1	0.04	0.02	0.15	0.10	0.14
Sulphite, bleached 2	0.14	0.08	0.10	0.05	0.01
Sulphite, bleached 3	0.26	0.16	0.14	0.07	0.07
Sulphite, bleached 4	0.09	0.05	0.12	0.08	0.73
Sulphite, bleached 5	0.32	0.21	0.29	0.16	0.47
Sulphite, bleached 6	0.38	0.20	0.30	0.16	0.48
Sulphite, bleached 7	0.48	0.30	0.23	0.14	0.19
Sulphite, unbleached	0.07	0.05	0.08	0.04	0.42
Rayon 1	0.09	0.06	0.12	0.07	0.14
Rayon 2	0.10	0.05	0.02	0.01	0.29
Soda, bleached	0.23	0.13	0.19	0.11	0.30
Soda, unbleached	0.03	0.02	0.02	0.02	0.01
Straw 1	0.25	0.15	0.10	0.06	0.35
Straw 2	0.03	0.02	0.18	0.09	0.07
Cotton half stuff, bleached	0.25	0.15	0.03	0.02	0.30
Hemp half stuff, bleached	0.07	0.04	0.13	0.07	0.13

That the differences in the copper numbers (which, in our experiments, were always determined on 2.5 grams of air dry pulp) obtained by using different amounts of the original Braidy solution, are surprisingly small, in agreement with the results of Wenzel and Köppe, is seen from Table 7.

TABLE 7

Copper sulphate solution	Carbonate-bicarbonate solution	Copper numbers	
		Wenzel and Köppe	Jonas and Drössel
5 cc.	95 cc.	3.59	3.50
10 cc.	190 cc.	3.54	3.41
15 cc.	285 cc.	3.38	3.33

The total result of this investigation shows that the copper numbers are somewhat lower than those obtained by the original method and by the previously proposed modification; that, however, in the great majority of cases, the range of the individual values and their variation from the average value is satisfactory. The difference of the average values of the copper number obtained by the various methods is not constant and appears to depend upon the specific properties of the pulps.

From Table 6 it follows without question that the change in the Schwalbe-Braidy method employed by us, apart from the previously proposed advantage of comminution of the pulp, has the worth while advantage of yielding Schwalbe-Braidy copper numbers which are definitely comparable with those determined by the Schwalbe-Hägglund method.

A comparison of the copper numbers of the modified Schwalbe-Braidy method with the copper numbers according to Schwalbe-Hägglund shows, almost without exception, a limit of error of 0.2.

Slightly pressed pulp may be satisfactorily comminuted without the use of glass beads. Copper numbers on a rayon pulp, which were obtained without the use of glass beads, do not differ in any way from those obtained with the use of beads in comminuting the pulp.

As a result of these experiments, we propose the following modification of the Schwalbe-Braidy method for determining the copper number:

Two and one half grams of pulp are softened with 50 cc. of water in a 300 cc. powder flash (with strongly compressed pulps, it is best to allow the mixture to stand over night), then shaken with 25 glass beads of 7 mm. diameter by hand for two minutes and transferred to a 300 cc. Erlenmeyer flask with 50 cc. of water. The contents of the flask are then heated to 100, the boiling Braidy solution (10 cc. copper sulphate and 190 cc. carbonate-bicarbonate solution) added and the copper number determined as usual by the Schwalbe-Braidy method.

Washing, Screening and Thickening Soda and Sulphate Pulp

SPECIAL INQUIRY No. 130

The TAPPI Alkaline Pulp Processes Committee submits the following questionnaire in an endeavor to compile a report that will show the methods and equipment used to perform the above operations.

1. Process used, soda....., sulphate....., other.....
2. Kind of wood used (if more than one kind is used, is each kind pulped separately, and if not, what are the relative proportions of each as cooked? .....
3. Equipment to wash black liquor from stock.....
4. Soda losses (pounds Na_2O per ton of bone dry pulp). (a) in water..... (b) in fiber.....
5. Stock losses (a) pounds per 1,000 gallons..... (b) pounds per 24 hours..... (c) pounds per ton pulp produced.....
6. Type of screens (a) flat of centrifugal..... (b) Make..... (c) cut or perforation, size.....
7. Density of pulp leaving fine screens.....
8. Method of handling tailings to free them from stock.....
9. Equipment to thicken pulp before bleaching.....
10. Fiber losses from thickener. (a) pounds per 1,000 gallons.... (b) pounds per 24 hours..... (c) pounds per ton pulp.....
11. Gallons per minute of water handled per ton of pulp washed, screened and thickened per day.....

Please make your report as detailed as possible and indicate why a certain method or unit of equipment is the best in your opinion. Send replies to Secretary, TAPPI, 18 E. 41st street, New York, N. Y.

Bleaching Methods and Equipment

SPECIAL INQUIRY No. 131

The TAPPI Alkaline Pulp Processes Committee submits the following questionnaire to assist it in preparing its annual report showing soda and sulphate pulp manufacturing developments. Since, however, the questions apply to all kinds of pulp, data are requested for sulphite, etc., and complete transcript of replies in blank, will be sent to all who contribute information.

1. Kind of pulp.....; Wood used.....
2. Tons pulp bleached per 24 hours (bone dry).....
3. Consistency of pulp in bleachers.....Per cent bone dry.
4. Continuous or batch system.....
5. Number of bleaching stages.....
6. If two stage system is used, what is density for each stage....
7. Average grams per liter of available chlorine in bleaching solution.....
8. What per cent bleach is used.....
9. Method of predetermining bleachability of pulp.....
10. Equipment for washing bleached stock (give name of equipment and manufacturers .....
11. Loss of stock through bleached stock washers. (a) pounds per 1,000 gallons..... (b) Pounds per 24 hours..... (c) Pounds per ton pulp.....
12. Gallons per minute per ton of wash water per ton pulp per day.....
13. Per cent chlorine (as calcium chloride) in washed stock.....

NOTE.—Please indicate which method of bleaching and which equipment is best in your opinion. Send replies to Secretary, TAPPI, 18 East 41st street, New York, N. Y.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

By Clarence J. West, Chairman

Sulphite Process

Effect of Temperature on Sulphite Cooking. Erik Hägglund. Pulp Paper Mag. Can. 26, 1775-1778 (Dec. 13, 1928). Other cooking conditions being equal, a yield of 55% pulp containing 7 to 8% lignin can be obtained with maximum cooking temperature of 120° to 135° C. When the maximum cooking temperature is carried to 135° C., delignification occurs so rapidly that it is difficult to stop the cook at exactly the proper moment, while this can easily be done with a maximum temperature of 120° C., which constitutes the advantage of low-temperature cooking. In the stages where the pulp has a bromine number of 0.15 to 0.30 (yields of 52 to 48%) it makes no difference whether the maximum temperature is 120° or 135° C., the pulp yields and their bromine numbers being the same and the pulps having practically the same strength when beaten to the same degree in both cases. With rapid cooking (maximum temperature of 145° C.), however, conditions are different, the pulp being of lower quality and the yield for the same degree of delignification about 3% lower. The rate of delignification is approximately doubled by increasing the cooking temperature 10° C. Temperature was found to have relatively little influence on the acidity, sugar content of the liquor, and production of sulphuric acid.—A.P.-C.

Sulphite Pulping Process. Geo. H. Tomlinson. Can Pat. 282,834 Aug. 28, 1928. A charge of wood chips is preheated in a digester to a temperature of approximately 100° C., by means of hot liquor discharged with the cooked pulp in a previous digesting operation, a charge of cooking acid is preheated in another container to a temperature of approximately 100° C., by means of hot gases obtained as the result of a previous digesting operation, the two preheated materials are brought together in a digester in such a manner as to maintain approximately the same temperature between the chips and the cooking acid, and then steam is introduced into the mass to complete the cooking operation.—A.P.-C

Production of Sulphite Pulp. 1. Cooking. L. Rys Chem. Obzor 1, 338 (1926). Citing the modern literature, which is compiled as an index, Rys gives a comprehensive survey of the methods used for cooking sulphite pulp. He discusses the chemical foundation of the cooking and the composition of the raw materials, as wood and sulphite liquor. Then he describes the containing both. Absorption is apparently complete in 32 hours, at which time the inner part of the stick contains an excess of free sulphur-dioxide and the outer part an excess of base, when sodium salts are used. This separation of the base does not occur with calcium or magnesium salts; the reason is obscure.—C.J.W.

Pulping of Pine Wood by the Sulphite Process. II. Erik Hägglund. Cellulosechemie 9, 38-43 (1928). In continuation of previous work, Hägglund studied the conversion of benzene-ether-acetone extracted pine wood by the sulphite process and found a great similarity to results obtained with spruce wood. Ether or benzene-extracted wood cannot be cooked to pulp by the usual sulphite process because such wood still contains acetone and alcohol soluble substances which prevent conversion. Unextracted pine wood can be cooked to pulp with excellent yields by the use of highly concentrated sodium bisulphite solutions. The pulp, however, still contains considerable resin and cannot be used for paper manufacture without deresinification. The Keebra process as described in patent literature gives poor results with pine wood. Pretreatment of spruce wood with a lime or sodium hydroxide solution at 105° C., causes a change in the wood and liberation of acetic and formic acid. A saturated lime solution causes one percent of the weight of the wood to be liberated as acetic acid. The treatment has no effect on the sulphite cook which follows. The pulps have higher ash contents but the lignin is normal. Pine heartwood extracted with benzene-acetone, then with lime, is not converted as well as without a pretreatment. When extracted with only benzene and followed with a pretreatment with lime the results were even poorer. A pretreatment with hydrochloric acid is of no advantage. The pretreatment of unextracted pine wood with alkalies at 105° C. gave unfavorable results. The residues contained considerable lignin and could not be defibrinated. The ash content was exceedingly high.—C.J.W.

Decomposition of Pine Wood with Sulphites. C. G. Schwalbe and W. Lange Papierfabr. 26, 641-644 (1928). The action of sodium sulphite solution on pine wood at 5-5.5 atmospheres pressure continues for a period of 48 hours. Preliminary soaking with sodium bisulphite decreased the necessary cooking period subsequently. Digestion of the wood shavings even at 170° C. after preliminary soaking still produced a harsh pulp. The preliminary soaking, while not incurring any serious chemical change, is considered of importance in loosening incrusting materials. Comparison of steam digestion processes following preliminary impregnation with the bisulphites of sodium, calcium and magnesium showed the last named to be the most effective. In the production of wet-digested pulp, the best quality half-stuff was obtained by a short preliminary soaking in sodium bisulphite, followed by pressure digestion with sodium sulphite for 8.5 hours at 170° C. In the steam digested trials the fiber was softened but incrusting material was not satisfactorily removed; the pulp was characterized by high lignin content.—C.J. W.

Digestion of Wood with Cooking Acids of Low Sulphite Content. VIII. Erik Hägglund. Papierfabr. 25, Fest—u. Ausland Heft, 60-63 (1927). Cooking acids of low sulphite content are often used to speed up the digestion process. The acidity during the course of the digestion process is smaller with a large sulphite content than with a cooking liquor with a small sulphite content. In the first stage of the cooking there is very little difference between the two types of liquors because any changes in the hydrogen-ion concentration have no effect on the sulphite addition and there are present no large quantities of lignosulphonic or sulphuric acids. During the latter period of the digestion process acidity plays an important role: reducing sugars appear and the yield of pulp is markedly affected. With acid liquors of low sulphite content the pulps resulting therefrom are inferior in tearing length and folding endurance. The fiber has become brittle.—C.J.W.

Saturation of Spruce Wood (with Sulphite Liquor). C. G. Schwalbe and Werner Lange. Papierfabr. 26, 238-241 (1928). Heart wood and sap wood absorb practically the same amount of sodium bisulphite solution, but the former absorbs considerably more magnetism bisulphite than the latter. Using cylinders of sap wood 3 by 4 cm. in size, with solutions containing respectively sodium, magnesium and calcium as base and equal amounts

(4.5 percent) of total sulphur-dioxide, the amount absorbed varies in order: bisulphite + free sulphur-dioxide > sulphite > bisulphite. The base used has little effect.

Sulphite Cellulose Cooking with a Mixture of Old and New Cooking Acid. E. Hägglund. Papierfabr. 26, 657-66; (1928). No economy is effected by the use of a mixture of waste sulphite cooking liquor with freshly prepared liquor rather than a freshly prepared acid alone. Comparative experiments with freshly prepared acid and with a mixture of one-third waste liquor and two-thirds fresh acid of the same concentration of lime and sulphur-dioxide show that for the latter the color of the product is inferior, the yield is smaller for the same lignin content, the ash content is higher for equal times of cooking, a greater degree of acidity of the liquor is attained and cooking proceeds at a slower rate. It is concluded that the danger of overcooking is greater with mixed than with fresh liquor. For the manufacture of pulp for bleaching and for the production of artificial silk, mixed liquors should be avoided, especially in the latter case, since with increasing acidity of the liquor the alpha-cellulose content of the product falls. Better results are obtained by thorough mixing of liquid and pulp than when no agitation occurs and the importance of efficient circulation in the cooker is emphasized.—C.J.W.

Sulphur Dioxide, Heat and Volume Balance in Relief Liquor and Gas in Sulphite Pulping. G. Soltau. Papierfabr. 26, 550-554 (1928. The relations are analyzed to show the sulphur-dioxide recovery and associated heat losses in various stages of a representative direct-steam cook. About one percent of the total heat used in cooking is lost with the relief gas, 10-12 percent with the relief liquor. This may advantageously be used in preheating the cooking acid. Nomographs show the relation of relief gas composition to digester temperature, and pressure, also the interrelation of strength and volume of tower and cooking acid, sulphur consumption and sulphur-dioxide recovery.—C.J.W.

Alteration of Cellulose by Action of Bisulphites. E. Hägglund and F. W. Klingstedt. Svensk Kem. Tidskr. 40, 181-188 (1928). Pure cellulose is not readily converted into sugar by boiling with bisulphites, a maximum of one percent being so changed, the amount of sugar produced depending upon the PH value of the liquid employed. The amount of alpha-cellulose present, however, decreases during the boiling. A material containing 96.2 percent of alpha-cellulose contained only 31 percent after 9 hours heating in a sealed tube at 130° C. with calcium bisulphite solution; further heating did not appreciably diminish this amount. The statement of Hess and others that the rotatory power of an ammoniacal copper solution of cellulose obtained from the acetate was identical with that of a similar solution of ordinary cellulose was confirmed experimentally. It is therefore concluded that the copper complexes formed by alkali-soluble cellulose and alpha. Cellulose must be identical and that any difference between these two forms of cellulose is physical rather than chemical.—C.J.W.

Sulphite Waste Liquor

Recovery of Waste Gases in Sulphite Pulp Manufacture. Geo. A. Richter Assignor to Brown Co., U. S. Pat. 1,683 628 Sept. 11, 1928.—In recovering sulphur dioxide from hot blowpit gases the latter are conducted through the spiral brick or other suitable confined inert interstitial material in counter-currelt flow to cold acidulated water, so that the vapors are condensed and the gases are cooled; the cooled gases are then led through another mass of interstitial material in contact with water to effect absorption of sulphur dioxide; the acidulated water of the first-mentioned treatment is supplied from the second stage of the process and the sulphur dioxide liberated in the first stage may be re-used in the preparation of cooking liquor.—A.P.-C.

Regeneration and Utilization of Sulphite Waste Liquor. W Michael and A. Palm, assignors to I. G. Farben industrie A. G. Can. pat (283, 415 Sept. 18, 1928)—In the process of producting cellulose by means of sulphurous acid and ammonia, free sulphurous acid is blown from the waste liquor, ammonia and a catalytic agent are added, the liquor is heated in a closed vessel to a temperature above 180° C., carbon is filtered off, sulphuric and oxalic acids are precipitated and filtered off, and the liquor is used again in a following pulping operation after introducing sulphurous acid. After repetition of these operations ammonium salts of organic acids are recovered from the filter and liquor finally obtained.—A.P.-C.

Treating Sulphite Waste Liquor. W. E. Byron Baker. U. S. pat, 1,685,800, (Oct. 2, 1928)—In order to recover sulphite material useful in preparing sulphite cooking liquor, the waste liquor is neutralized with an alkaline-earth metal base such as lime to give a pH value of 9 or a greater alkalinity and to decompose the reversibly combined sulphur dioxide and increase the recovery of sulphur as monosulphite; in preparing the cooking liquor, the solids are treated with cooking acid containing free sulphur dioxide for producing bisulphites.—A.P.-C.

Recovering Sulphur Dioxide from Waste Gases. Geo. A. Richter assignor to Brown Co., U. S. pat. 1,685,754, Sept. 25, 1928.—The hot digested contents of a suphite digester are discharged into a blow-pit, hot sulphur dioxide and vapors liberated in the blow-pit are passed in direct contact with and in counterflow to cold water supplied in such regulated amount that the largest fraction of sulphur dioxide is cooled without being absorbed and passes on in a cooled condition for absorption; some sulphur dioxide is also recovered from the hot effluent water.—A.P.-C.

Derivative from Ligninsulphonic Acid. A. J. Hailwood assignor to British Dyestuffs Corp. Ltd. Can. Pat. 282 677, Aug. 21 1928.—A new derivative of ligninsulphonic acid (sulphite cellulose pitch) is obtained by treating at 110° to 120° C. under pressure with ammonia solution. The new product is particularly suitable for addition to dispersed dye pastes which are to be dried to powder form. It also finds application as tanning agent.—A.P.-C.

New Suggestions for Utilizing Pulp Waste Liquors. A. Schohe. Papierfabr. 26, 241-248 (1928).—A review of patents issued during 1925-1927.—C.J.W.

Recent Experiences in the Evaluation of the Waste Sulphite Liquors. G. Teschner. Kl Mitt. Ver. Wasserversorg. Abwasserbeseitig 3, 17-21, 157-162.—A discussion of the most important and promising procedures for utilizing the waste liquors, particularly for the production of sugar, tanning agents, pitch, disinfectants, coal dust briquets, fuel from the concentrated liquors and various other valuable products in addition to sulphite charcoal.—C.J.W.

Tanning Products Derived from Sulphite Waste Liquors. Rene Escourrou. Halle Aux Cuirs 203-214 (July 15), 234-246 (Aug. 15, 1928).—Sulphite waste liquor is treated by one of a number of enumerated processes and evaporated either to dryness or to a thick syrup. The resulting extract contains lignosulphonic acids akin to syntans, which they resemble in the properties and uses. Analyses of 3 solid and 13 liquid extracts are given. In addition to insoluble matter, soluble matter, nontans and tans, important characteristics are titratable acidity, pH value and ash. In the samples analysed, ash varied from 1.5 to 14.2% according to the completeness of elimination of lime from the sulphite waste liquor. High ash is objectionable. Slight acidity is desirable, but the presence of free sulphuric or hydrochloric acid is objectionable. The flourescence of sulphite tanning extracts, which resembles that of syntans, is too variable to be used as a qualitative means of detection. Uses (1) To aid in dissolving such natural tanning materials as quebrach. (2) In tanning, mixed with natural tanning materials, to obtain quicker penetration, liquors, brighter colored leather and higher yield.—A.P.-C.

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Accounting From The Management Viewpoint

By Monard V. Hayes[1]

In order to appreciate accounting from the management viewpoint it is desirable to know something of the history and development of accounting. The sketch here given is intended only as an introduction to the main problem. An examination of the work of H. R. Hatfield, "Modern Accounting" (1909) reveals that his objective was the presentation of a "correct" exhibit of the financial status of a concern at a given moment of time and the showing of the results obtained during a given period. In order to obtain this correct exhibit of financial results it was necessary to present a philosophy of valuation and of classification.

W. M. Cole, "Accounts, their Construction and Interpretation" (1908), states that accounting is for the purpose of presenting not only a correct exhibit of financial status and of profiit and loss but, also, a statement of the cost of various services rendered. In the case of each of these authors, and those who follow their ideas, the work of the accountant starts after the results have been secured. This type of accounting may be described best by the phrase, "retrospective accounting". It may be well to say, "however, that the philosophy of retrospective accounting was developed by those who were interested in the presentation of the financial status of a modern from the viewpoint of accounting. Such accounting has a useful place in the business enterprise but, from the management viewpoint, historical data of the type provided have important limitations.

Rule-of-Thumb Methods

Just as there are different ideas as to the aims of accounting and the ways and means of securing those aims, there are different ideas about management. Some of these ideas will be reviewed briefly. There are those managers who manage without any effort to find fairly exact information of the past as a guide to the future. This type of management is known for its rule-of-thumb methods. It usually has little respect for accounting and tolerates it only because of necessity for some information. There is, however, no effort to secure vital information which will assist in business planning. A different type of management secures full information of a historical nature and looks with considerable favor upon a system of accounts which will produce information which is considered essential for the operation of a business. Here again the records are not used for effective business planning; they are merely financial history of a kind. Executives who appreciate the science of management make a very different use of records. Pertinent information may be secured from properly devised records. It is possible to draw valuable deductions, which may be used for management purposes, from such records.

Management is interested in the past only to the extent that it will throw some light on the future. If accounting is to aid management in proportion to its potentiality, instruments must be provided which will aid management in the solution of business problems. Since management is mainly interested in the future, accounting instruments are needed which will assist management in planning the future, in visualizing the present and in the presentation of significant information about the past. In order to accomplish this, a very different viewpoint of the function and aim of accounting is required. Retrospective accounting is of value to management but only a small part of the total value which may come from accounting from the management standpoint can be realized from historical accounting.

Accounting, from the managament viewpoint, assists in the placement of authority and responsibility; assists in future planning; shows performance and assists in the valuation of the causes for variations between plans and performance. It accomplishes the aims of all science—that of prediction. Unless accounting be used in its broader aspects, to assist in predicting results with more accuracy than rule-of-thumb methods, it is of very limited value to management.

Duties Should Be Clearly Defined

In order to accomplish the aims of accounting, an organization is required. Authority and responsibility in such an organization should be placed so that accountability for the several phases of management is practicable. The organization should be so planned as to minimize the cross-currents of authority and responsibility. The duties of the board of directors, the chief executive and other executives should be clearly defined and their responsibilities made coterminous with their duties. In such an organization, standards and records are imperative. If such standards and records are to be most effective, some member of the organization must be in charge of their preparation and interpretation. Such a person may be designated as the controller. In effect, the controller should be a right-hand man to the chief executive. Standards for use in management work have, as yet, not received the recognition by business men which they deserve. Unless management be guided by means of standards and records the best results need not be expected.

Properly devised budgets serve as a guide in the conduct of a business enterprise. Such budgets are effective means for the

[1] Consulting Management Eng.
* From N. A. C. A. Bulletin.

establishment of standards. A properly devised budget has three dimensions, namely: time, units and prices. Although it may seem quite obvious that time is important in business planning, this is not the case. Most records do not show the effects of time on the results recorded. Such records also show amounts which are the result of units and prices. Since the amount is affected by two variables, the business man is often at a loss to know which one is varying, so that any interpretation of cause for variation may be seriously affected by personal factors. The objection may be raised that records and reports which are made in units and prices would be expensive to operate. There are, however, always ways and means for minimizing the complexities of the task of securing information relative to unit and prices. The index number is an effective way of doing this.

Based Upon Science

Much has been said about the budget as an instrument for business planning. It may be said, however, that business enterprises base their budgets upon scientific facts. Unless the budget be made in such a manner that it may serve as a standard for performance it will fail to accomplish its highest purpose. When the budget serves as a bogey, which is doubtful of attainment, it may do more harm in the long run than it does good immediately. The budget should be an instrument for forecasting attainment and any deviations from the budget in attainment should be accounted for and the significant information used for perfecting the budget as a forecasting media.

Financial statements have long been recognized as aids to management. Such statements, however, should be thoroughly understood, given a proper interpretation and used before they are of much value to management. Millions of dollars are spent in compiling financial statements of various varieties which are unintelligible to management and little use of any possible information they contain is ever made. The accountants have their share of the blame for this state of affairs because accounting should serve management and if it is not so devised and presented as to make pertinent data available for management use, something is wrong. One of the principal troubles is that accounting is generally of an historical nature with no idea of presenting information which may be used as a guide in the future. Unless the data be so used, they are of very limited application in management work.

Another weakness of historical accounting is that of the interpretation which must be placed upon the data presented. Financial statements in themselves are very poor indicators of value. A much more fundamental basis, as indicated below, is needed for the evaluation and interpretation of historical statements. The analysis of the financial statements of any prominent concern and the price for which its stock sell over a period of time will show that financial statements have little or no bearing upon the value of its securities. Then there is the question of the price of commodities which a concern sells. Financial and related statements of an historical character are indeed very rough gauges for the establishment of prices. Too often they are of no real utility to management in this respect.

Interpretation of Statements

From the management viewpoint, a sound interpretation of financial statements, which may be used in the guidance of the business, is necessary. In the final analysis, the relative profit possibilities of an enterprise is the dominating factor which must be used in evaluating the worth of the business. This indicates that studies must be made of the economic position of the concern with respect to the industry and other industries. Once the profit possibilities are determined, something may be known as to its relative worth. This worth may be more or less than disclosed by financial statements or market prices but as an indicator of value it is far superior to historical statements. One of the principal uses to which financial and operating statements may be put has not been properly emphasized. Such statements serve as the means for comparing the budget with performance. The budget cannot be the most effective instrument for planning, unless there be a comparison of expectations and performance and the analysis and evaluation of the causes for variation between plan and performance. It is through the use of these instruments of management that the science of management may be discovered. The most effective basis for the evaluation of management is to be found in the variations between plan, budget or standard and performance. The usual basis is to compare earnings and financial position over a given period. Such a basis is unsatisfactory because much is embodied in it over which the management has no control. Then, too, the data are not comparable. There is a fundamental fallacy in comparing the performance of a concern over two periods of time with a view of determining the effectiveness with which management has met the problems faced. The problems and conditions are not usually the same. What is needed is a comparison of expectations and performance. Management is foresight, not hindsight. This does not mean that management must be visionary. It must be able to reach the goal which has been set, or give proper reasons for the variations between plan and performance.

Control of Profits

Much has been written about cost accounting. The technique of historical cost accounting and standard cost accounting has been discussed widely during the past few years. Little has been said, however, about its use by management as an instrument for the control of the profits of an enterprise. It has been stated, among other things, that cost information will assist management in the location of wastes or high costs, in determining profits by lines of products and in indicating the price for which goods should be sold. These are admirable aims but their accomplishments are subject to evaluation and interpretation. It must be admitted frankly, that, while these aims may be accomplished on paper, their accomplishment as effective tools for management control is often a distance from realization.

Take the question of price. Price is not determined by administrators and managers in the manner prescribed by cost accountants, namely: materials, plus labor, plus overhead and plus profit, equals price. Nor is price determined by supply and demand as prescribed by the economist. While it cannot be said that there is any way in which prices are determined, they are, however, generally determined, in a competitive market, by a series of comparisons of goods and prices by buyers and sellers. Where quality is a constant, price is determined, more or less, by competitive bidding. The psychology of this bidding is interesting. Executives who are instrumental in setting prices for business firms are not as rational as many people have supposed them to be, and certainly they do not burden themselves with and take too seriously the data which the cost department may have spent many laborious hours of painstaking effort to present. The executive is not so much interested in what costs have been as he is in what they will be under conditions which are more or less within his control. Since costs will vary widely, according to the capacity used, profit margins, etc., the executive must ignore, for the most part, all cost data of an historical character which do not shed light upon the problems which he is facing and will face as conditions continue to change. Executives in other businesses are faced with the same problems, so that when they come to consider the question of price the prime consideration is too often the price at which the business can be had; big, little, or no theoretical profits.

Detecting Wastes or High Costs

From what has been said above it should appear that the use of costs as a means for detecting wastes or high costs also requires evaluation and interpretation. Certain types of cost information may be of assistance in this matter, but the usual type of historical cost accounting is untrustworthy for this pur-

pose. The fact that a quantity of goods cost $7.001 per unit to make last year or last month and $8.467 this year or month is of little assistance in detecting whether or not one cost is too high or the other exceptionally low, or vice versa. Much cost accounting is absolutely lacking in a standard for comparison. Standard costs, however, if properly operated, make possible significant cost information which may be used advantageously. Standard costs must be based upon time studies, standard conditions and precise management. If the management can secure information which will tell, within practical limits, the profit which may be secured from different operating capacities for particular classes of goods which will carry stated variations in price and costs, information will be had which is valuable for use in determining what business to take at particular prices. Cost information is of little use until it supplies the management with data which will enable rational calculations to be made for the purpose of determining when and at what price business may be taken to yield specified rates of return. Historical cost accounting, of the usual type, can seldom furnish the executive with anything but rough data which require much evaluation and a sound interpretation before they are of any value to management.

Historical costs, however, which are prepared in a uniform manner may be used to compare costs of one plant or department with that of another plant or department during a given period. However, uniform costs may be in the manner of their preparation, a direct comparison of results for disclosing economies or wastes requires interpretation. If the wage scale is the same, a variation in labor cost may result from a variety of causes. Some of these are: unequal machine efficiency of plants, unequal hours worked, unequal training and skill of operators, unequal skill of management in cooperating with labor and many other causes. There are, likewise, differences in other components of cost. While much good has come from the usual type of historical cost accounting, this is a first stage in the development of cost information for management use. Standard costs if properly devised and operated, will get a lot of chaff out of the raw data and will make an evaluation of results easier to interpret for management use.

Evaluation of Future Expectations

In some lines of industry, historical costs, when properly interpreted, may be used as an aid to management in the evaluation of future expectations. For example, the price of an automobile is not determined by past costs but they may be used in certain cases as a basis for a rough test of relationship between prospective costs and sales prices. Such costs have particular value when production does not vary much and the cost components remain practically stationary from one year to the next. Not many enterprises within an industry are so well favored with stable costs and sales prices. A comparatively small variation in cost or in sales price may be sufficient to eliminate all profits and even more. Where a concern is favored by wide margins of profit and comparatively stable business, past costs may serve as useful instruments for profits control without undue risk of operating at a loss. Unfortunately, most businesses are not so situated and even if they were, better results may be obtained by steering the business from the engine instead of from the caboose.

Accounting which does not make available more information than may be secured from financial and operating statements is omitting some of its most valuable opportunities to render service to management. Internal statistics are compiled from the financial and operating records and information obtained within the business. Such statistics may be a different kind of classification of pertinent business information. Since internal statistics cover a wide variety of information, it is impossible to tell where so called accounting ends and statistics, begin. The distinction that accounting deals with the dollars and cents while statistics deal with quantities is too superficial to require refutation. Internal statistics will be referred to, therefore, as data derived by a different method of classification from that which is common to bookkeeping. Internal statistics are a part of accounting proper. Without their use it would be impossible to evaluate and interpret ordinary financial operating and other business data in a sizable business.

Dollars and Cents Figures Illusive

Quantative data are particularly needed in the management of a concern, especially a sizable business. Dollars and cents figures are too illusive; they are too hard to understand. For example, sales in dollars may be rising while quantities sold may be falling, or vice versa. Unless management realizes these facts, the concern is likely to suffer losses or make gains without the management ever knowing just what the true situation was that caused the results.

Unless quantative data be had, it is difficult to set the budget of a concern or to evaluate the results secured, with much rationalization. Some of the most perplexing questions in proper budgeting are settled if a concern knows its position in the industry and the rate of growth of business. An attempt to measure industrial and commercial position with the dollar mark is a very difficult thing to accomplish in a satisfactory manner. The cause of this is the fluctuation in price of commodities. Since most concerns sell a variety of commodities it is hard to form any idea of the physical volume from a knowledge of how much in dollars of various kinds of goods were sold. An index of prices may be used to get an idea of the physical volume of commodities sold but such an index must be built up by the statistical method from internal or external statistical data.

During the past few years business men have come to realize the value of statistical information of other businesses. This has been brought about by the fact that conditions in other businesses affect the individual business. It is not sufficient to go along, in many lines of business, without paying close attention to what is taking place in other businesses. In fact, many sizable concerns have found it prudent to maintain a special staff to study external conditions while many other concerns spend time and effort in this direction. The objective of such studies is to secure some important knowledge of what is taking place in industry and particularly in those parts which affect the outlet for the firm's goods and the supplies which it must purchase. Neglect in securing proper information of external conditions has resulted in a large number of concerns sustaining heavy losses. The fact that business conditions seem to have quit the violent swings which formerly existed is little indication that changing business conditions have ceased to affect vitually the business concern. In fact, many concerns may realize substantial profits or sustain sizable net losses when business fluctuates as little as two, or three or five percent. With a proper forecast of external conditions, the executives may plan internal operations with considerable confidence.

Many Types of Research Needed

Many types of research are needed in the setting of standards and in the appraisal of results. Research is a tool for the improvement of the instruments of production. For example, it is desirable to know the rate at which work can be done under standard conditions. The best way to secure such information is by research and study of the factors involved. The funds for research are usually limited and the most profitable projects should be worked upon first. It is for this reason that research should be undertaken only after the results to be secured are appraised by the controller and the executive head of the business. Without research and experiment it is unlikely that much will be accomplished toward the improvement of standards. Accounting must have adequate standards if much value is to come from a knowledge of what has happened in the past. Research, then, becomes effective as an instrument of accounting.

COST SECTION

Some of the most important types which may be used to make accounting of more value to management are research in: (1) budgets, (2) sales and markets, (3) production, (4) cost and expense reduction, and (5) profits and policies. Such studies are conducted along lines which are fundamentally business propositions. This indicates that, while the studies are economic in character, they are from the viewpoint of concrete business institutions.

An accurate appraisal is needed of the economic and business forces at work which cause results. This evaluation should be in terms of the estimated set. Every evaluation must have a basis and a systematic way in which the data are gathered, together with a procedure for making the data tell a story of what has happened in the business. Financial and operating statements and statistics produce an evaluation. The manner of interpreting the significance of the evaluation is most important. The method of evaluation may conform to a definite philosophy, or a systematic procedure, as in financial accounting. Here, the interpretation of the data usually rests upon the assumption that the method of preparation of the data is such that its interpretation will be that which was implied in the principles followed in arriving at the evaluation. It should be made clear, however, that such evaluation methods, if not based upon proper standards, are likely to be very confusing and cause serious errors in interpreting the significance of the data.

Interpretation May Be Misleading

For example, suppose that the profits of a concern, which renders its statements in accordance with good accounting practice, shows that 15 percent of its net worth at the beginning of the year has been lost during the year. The principles followed imply that such an interpretation, necessarily follows. It should be understood clearly, however, that this interpration while true in certain respects, is or may be very misleading from the management and investment points of view. The viewpoint here is not much the so-called facts, but, how the results compare with what might have been expected by an intelligent management and how the results compare with other concerns in the industry. From this it should appear that, for the purposes of interpretation, much more is needed than a simple history of the business, written in financial terms. A knowledge of what a business has done in the past is but footprints in the sands of time. It does not tell where the business is going and that is what the management and the stockholders want to know. This is where interpretation finds a fertile field. What should the business do during the next one, two or five years? Unless the past yields valuable information which may be used in forecasting the future and in interpreting causes for variation between forecast and performance, experience is an exceedingly poor teacher.

Although the problems of evaluation and interpretation are of much importance, their scope can be sketched but briefly here. Accounting must provide information which will assist in effective business planning, give adequate control over the results and furnish significant information as to plans, accomplishment and significant causes for variation between plans and accomplishment. The tools of such accounting consist of: budgets, cost information, expense data, internal and external statistical data, standards, research, evaluation and interpretation. These cannot be considered operative without an organization to make the work effective.

Schroon River Pulp & Paper Co. To Start

WARRENSBURG, N. Y., August 26, 1929.—The Schroon River Pulp and Paper Company, which has been closed since early in July, will resume full time operations on September 1. During the shutdown the mill has been entirely overhauled, new machinery installed and some of the other equipment remodeled. A number of the employees assisted in the renovating of the plant which has been thoroughly modernized throughout.

COST SECTION

Canadian Paper Exports Decline

Canadian exports of pulp and paper in July were valued at $15,384,331, according to the report issued by the Canadian Pulp and Paper Association. This was a decline of $1,904,525 from the June total and showed a gain of $262,169 over the total for July, 1928.

Wood pulp exports for the month were valued at $3,127,292 and exports of paper at $12,257,039, as compared with $3,896,754 and $11,225,408, respectively, in July, 1928.

For the various grades of pulp and paper exports for the past month and for July, 1928, were as follows:

	July, 1929		July, 1928	
PULP:	Tons	$	Tons	$
Mechanical	15,579	435,989	17,006	478,337
Sulphite bleached	16,479	1,270,063	23,557	1,732,910
Sulphite unbleached	15,589	763,710	16,719	823,397
Sulphate	10,314	602,891	13,934	821,670
Screenings	2,734	54,639	1,877	40,440
	60,695	3,127,292	73,093	3,896,754
PAPER:				
News print	199,692	11,795,510	167,456	10,765,033
Wrapping	1,013	108,330	1,341	147,938
Book (cwts.)	5,956	51,030	4,907	45,913
Writing (cwts.)	20	743	1,101	10,330
All other	.....	301,426	.....	256,194
	.....	12,257,039	.....	11,225,408

For the first seven months of the year exports of pulp and paper were valued at $112,584,311 as compared with a total of $109,226,243 in the corresponding seven months of 1928, an increase for this year of $3,358,068.

Wood pulp exports for the seven months amounted to $24,597,797 and exports of paper to $87,986,514 as compared with $26,236,634 and $82,989,609, respectively, in the same period for 1928.

Details for the various grades of pulp and paper exported in the seven months' period are as follows:

	Seven Months, 1929		Seven Months, 1928	
PULP:	Tons	$	Tons	$
Mechanical	108,832	2,967,472	103,927	2,827,380
Sulphite bleached	147,792	11,278,588	147,420	11,070,136
Sulphite unbleached	107,061	5,309,838	125,396	6,333,246
Sulphate	78,988	4,691,636	95,544	5,659,481
Screenings	19,405	350,263	17,077	346,391
	462,118	24,597,797	489,364	26,236,634
PAPER:				
News print	1,409,993	84,414,737	1,232,836	79,469,925
Wrapping	8,728	943,453	9,371	1,026,819
Book (cwts.)	43,629	372,349	36,243	302,821
Writing (cwts.)	3,114	28,428	2,825	26,967
All other	.....	2,177,547	.....	2,183,077
	.....	87,986,514	.....	82,989,609

Pulpwood exports have been smaller this year, the total for the seven months being 742,012 cords valued at $7,332,441 as compared with 931,357 cords valued at $8,917,914 in the first seven months of 1928.

Berkshire Creditors To Get ½ Cent on Dollar

[FROM OUR REGULAR CORRESPONDENT]

PITTSFIELD, Aug. 26, 1929.—The final account of attorney Henry L. Harrington of Adams, former president and temporary receiver of the Berkshire Hills Paper Company of Adams, in the case brought against the company by Jacob Rudnick et al., has been filed in Superior Court.

If the final account is allowed, the First National Bank of Boston, largest of the common creditors, will receive a final dividend of $3,359.87 on its claim of $582,299.98. Other common creditors, including several Berkshire firms, will receive dividends in the same proportion at the rate of $.00577 on the dollar.

The report covers the period from Aug. 31 to the present.

The receiver on the former date had a balance of $16,431.65. Since that date he has collected from the First National Bank of Boston $179.15, unused Federal income tax guarantees payable to the company.

From the total the receiver has paid $3556.46 in United States Federal accounts, $500 to attorney James Rosenthal as counsel fees and $1595.91 to the receiver.

Preferred claims of $5773.00 have been paid, leaving a balance of $4290.98 for claims of common creditors amounting to $743,873.69.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Monroe, Mich.—The Consolidated Paper Company has approved plans for a new addition to mill, consisting of a one-story unit adjoining Plant No. 3, reported to cost close to $60,000, with equipment. Superstructure will be placed under way at once.

Menasha, Wis.—The Gilbert Paper Company, Menasha, has awarded a general contract to the C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., for construction of proposed new addition to mill, estimated to cost about $55,000, and unit will be pushed to early completion. It will be used as an extension to main manufacturing plant.

Columbus, Ohio—The Central Ohio Paper Company, Columbus, has completed plans for the construction of a new two and three-story building at 226 North Fifth street, with 100 feet frontage, 120 feet wide in rear, and 140 feet deep, to be used for storage an distributing service. Complete facilities for this purpose will be installed. The structure will cost about $120,000, with equipment. It is understood that the first floor will likely be leased to an outside interest. H. T. Collingwood, 1520 Bryden road, Columbus, is architect. Roy Miller is chairman of board of directors of paper company. Superstructure for new unit is expected to be placed under way early in September.

Whippany, N. J.—McEwan Brothers, manufacturers of paper box board products, have been carrying out an improvement program at their local mill, including the installation of new mechanical drying equipment for increased capacity and for greater speed in service, allowing the use of low pressure steam service. Betterments have been made in other departments for increased operating efficiency.

Swannanoa, N. C.—Alexander Harris, Swannanoa, is at the head of a project to establish and operate a plant in this vicinity for the manufacture of abrasive paper products. Inquiries are being made for necessary machinery and equipment. It is understood that a site has been selected and that a company will be formed to carry out the enterprise.

East Walpole, Mass.—The Hollingsworth & Vose Company, 333 Washington street, Boston, Mass., has awarded a general contract to the M. W. Allen Construction Company, East street, Walpole, Mass., for the erection of proposed new addition to mill at East Walpole, recently referred to in these columns. The new unit will be one-story, 60x120 feet, and will be used for extensions in the machine department. It will cost close to $40,000, instead of a smaller amount, previously noted.

Lambertville, N. J.—Interests said to represent the Franklin Paper Company, Inc., 810 Sansom street, Philadelphia, Pa., have purchased the former local paper mill of the Perseverance Paper Company, South Union street, at a public sale, held August 15, under the direction of Harry A. Jacobs, trustee in bankruptcy. The disposition was to satisfy claims against the company amounting to $17,000, as well as taxes due the city. The sale included a large quantity of glassine and grease-proof paper stocks as previously produced at the plant. The purchasing interests will take possession at an early date, and are said to be planning improvements and betterments in the mill with view to early resumption of production.

New York, N. Y.—The Gramercy-Mercer Corporation, recently organized by George M. Pashia, 906 DeKalb avenue, Brooklyn, N. Y., and associates, with capital of 300 shares of stock, no par value, is said to be planning the early operation of a local plant for the manufacture of fiber boxes and containers, and kindred products. Joseph Weinstein, 5718 Fort Hamilton Parkway, Brooklyn, is also interested in the organization.

Ogdensburg, N. Y.—The Algonquin Paper Corporation, Ogdensburg, is said to be planning the rebuilding of engine house located on its docks, destroyed by fire, August 18, with loss reported in excess of $20,000, including equipment.

Carnegie, Pa.—The Superior Paper Products Company is having final plans arranged for a proposed new addition to local mill, and plans to ask bids on general contract early in September. The new unit will be two-story, designed for large increase in present output, and is estimated to cost close to $150,000, with equipment. Braziell & Anderson, 309 Fourth avenue, Pittsburgh, Pa., are architects; bids will be taken from the last noted office.

Monroe, La.—The Brown Paper Mill Company, Inc., Monroe, is beginning to make equipment awards for its new addition at West Monroe, and has placed a contract with the Pusey & Jones Corporation, Wilmington, Del., for two paper-making machines. It is understood that orders for auxiliary equipment will be made soon. The Morton C. Tuttle Company, 31 St. James avenue, Boston, Mass., general building contractor, is arranging to begin work at once on the new group of ten units. The entire project is estimated to cost approximately $5,000,000, with machinery. George F. Hardy, 309 Broadway, New York, is consulting engineer, in charge. The company has arranged for additional financing, covering a bond issue of $1,500,000, to be used in connection with the expansion. H. L. Brown is president.

New Iberia, La.—The Celotex Company, 645 North Michigan avenue, Chicago, Ill., manufacturer of wallboard, insulating board, etc., using sugar cane fiber waste as raw material, has concluded negotiations for the purchase of a paper mill at New Iberia, heretofore held by the Charles Boldt Paper Mills Company, and will take over the property at an early date. Extensions and improvements will be made in the mill, with installation of equipment for manufacture of company's specialties. The plant will be given over, as well, to the production of other commodities from the same raw material, recently developed and perfected by the research department of the organization. The entire project is reported to cost in excess of $250,000. The New Iberia mill will be operated in conjunction with the main plant of the company at Marrero, La. B. G. Dahlberg is president.

West Springfield, Mass.—The Strathmore Paper Company, Front street, Mittineague, Mass., is said to have revised plans under way for its proposed new hydroelectric power plant at West Springfield, for mill service, to be 54x60 feet, reported to cost close to $100,000, with equipment.

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING AUGUST 24, 1929

SUMMARY

Cigarette paper .....1,946 cs.
Wall paper .....33 bls., 25 cs.
Paper hangings .....4 bls.
News print .....11,742 rolls
Printing paper .....47 rolls, 116 cs.
Wrapping paper .....17 rolls, 142 cs.
Packing paper .....10 cs.
Tissue paper .....230 cs.
Decalcomania paper .....18 cs.
Transparent greaseproof paper .....135 cs.
Drawing paper .....51 cs.
Filter paper .....50 bls., 30 cs.
Surface coated paper .....2 cs.
Gold coated paper .....3 cs.
Metal coated paper .....2 cs.
Colored paper .....5 cs.
Silk paper .....4 cs.
Parchment paper .....20 cs.
Writing paper .....33 cs.
Cover paper .....9 cs.
Coutchouc paper .....2 cs.
Cardboard .....262 cs.
Envelopes .....69 cs.
Bowl paper .....25 pkgs.
Design paper .....1 cs.
Garnet paper .....24 cs.
Straw paper .....101 rolls
Straw board .....34 bls.
Miscellaneous paper..1,357 rolls, 424 bls., 111 cs.

CIGARETTE PAPER

De Manduit Paper Corp., Collamer, Havre, 108 cs.
De Manduit Paper Corp., Schodack, St. Nazaire, 926 cs.
American Tobacco Co., Schodack, Bordeaux, 850 cs.
British American Tobacco Co., Berengaria, Southampton, 62 cs.

WALL PAPER

S. Stern Stiner, A. Ballin, Hamburg, 2 bls.
Irving Trust Co., A. Ballin, Hamburg, 12 cs.
Draeger Shipping Co., A. Ballin, Hamburg, 1 cs.
Globe Shipping Co., A. Ballin, Hamburg, 6 bls.
F. J. Emmerich, A. Ballin, Hamburg, 6 bls., 4 cs.
Heemsoth, Basse & Co., Stuttgart, Bremen, 2 bls.
F. J. Emmerich, Baltic, Liverpool, 1 cs., 2 bls.
Stone Gross Co., Majestic, Southampton, 1 cs.
J. E. Bernard & Co., Majestic, Southampton, 2 cs.
W. H. S. Lloyd & Co., Minnekahda, London, 3 cs., 1 ble.
Globe Shipping Co., Bremen, Bremen, 1 cs.
Irving Trust Co., Resolute, Hamburg, 9 bls.
Globe Shipping Co., Resolute, Hamburg, 3 bls.
A. C. Dodman, Jr., Inc., Berengaria, Southampton, 2 bls.

PAPER HANGINGS

A. C. Dodman, Jr., Inc., Baltic, Liverpool, 4 bls.

NEWS PRINT

Perkins, Goodwin & Co., A. Ballin, Hamburg, 420 rolls.
Parsons & Whittemore, Inc., Stuttgart, Bremen, 572 rolls.
Journal of Commerce, Minnequa, Helsingfors, 66 rolls.
Stora Kopperberg Corp., Gripsholm, Gothenburg, 78 rolls.
Bank of Montreal, Humberarm, Corner Brook, 10,606 rolls.

PRINTING PAPER

Keuffel & Esser Co., A. Ballin, Hamburg, 47 rolls.
E. Dietzgen & Co., A. Ballin, Hamburg, 19 cs.
Dingelstedt & Co., Stuttgart, Bremen, 5 cs.
E. Dietzgen & Co., Rotterdam, Rotterdam, 54 cs.

CASES

F. C. Strype, Rotterdam, Rotterdam, 32 cs.
P. C. Zuhlke, Belgenland, Antwerp, 6 cs.

WRAPPING PAPER

E. Dietzgen & Co., Rotterdam, Rotterdam, 63 cs.
Birn & Wachenheim, Belgenland, Antwerp, 61 cs.
International Forwarding Co., Belgenland, Antwerp, 7 cs.
F. C. Strype, Belgenland, Antwerp, 7 cs.
A. Johnson & Co., Gripsholm, Gothenburg, 17 rolls.
Mantle & Co., Berengaria, Southampton, 2 cs.

PACKING PAPER

American Express Co., A. Ballin, Hamburg, 10 cs.

TISSUE PAPER

Old Master Paper & Pulp Co., A. Ballin, Hamburg, 117 cs.
Old Master Paper & Pulp Co., Resolute, Hamburg, 59 cs.
Parsons & Whittemore, Inc., Laconia, Liverpool, 31 cs.
F. C. Strype, Laconia, Liverpool, 2 cs.
F. C. Strype, Minnequa, Helsingfors, 21 cs.

DECALCOMANIA PAPER

L. A. Consmiller, A. Ballin, Hamburg, 9 cs.
C. W. Sellers, A. Ballin, Hamburg, 2 cs.
C. W. Sellers, Resolute, Hamburg, 7 cs.

TRANSPARENT GREASEPROOF PAPER

Central Hanover Bank & Trust Co., A. Ballin, Hamburg, 24 cs.
Central Hanover Bank & Trust Co., Resolute, Hamburg, 66 cs.
American Express Co., A. Ballin, Hamburg, 45 cs.

DRAWING PAPER

Keuffel & Esser Co., A. Ballin, Hamburg, 48 cs.
H. Reeve Angel & Co., Inc., Minnekahda, London, 3 cs.

FILTER PAPER

C. Schleicher Schull Co., A. Ballin, Hamburg, 13 cs.
A. Gusmer, Inc., Rotterdam, Rotterdam, 50 bls.
H. Reeve Angel & Co., Inc., Minnekahda, London, 17 cs.

SURFACE COATED PAPER

Globe Shipping Co., A. Ballin, Hamburg, 1 cs.
Phoenix Shipping Co., Resolute, Hamburg, 1 cs.

GOLD COATED PAPER

F. Murray Hill Co., Stuttgart, Bremen, 3 cs.

METAL COATED PAPER

Hensel, Bruckman & Lorbacher, A. Ballin, Hamburg, 2 cs.

COLORED PAPER

P. H. Petry & Co., A. Ballin, Hamburg, 5 cs.

SILK PAPER

Whiting & Patterson Co., Inc., Rotterdam, Rotterdam, 4 cs.

PARCHMENT PAPER

S. Bienfang, N. Amsterdam, Rotterdam, 20 cs.

WRITING PAPER

American Express Co., Belgenland, Antwerp, 10 cs.
The Eleto Co., Majestic, Southampton, 5 cs.
American Express Co., Ile de France, Havre, 3 cs.
G. W. Sheldon & Co., Berengaria, Southampton, 2 cs.
Japan Paper Co., Berengaria, Southampton, 13 cs.

COVER PAPER

International Forwarding Co., A. Ballin, Hamburg, 9 cs.

GOUTCHOUC PAPER

American Express Co., A. Ballin, Hamburg, 2 cs.

CARD BOARD

American Express Co., Resolute, Hamburg, 262 cs.

ENVELOPES

J. Beckhard & Co., Stuttgart, Bremen, 34 cs.
Globe Shipping Co., Stuttgart, Bremen, 35 cs.

BOWL PAPER

Hurley Johnson Corp., Laconia, Liverpool, 25 pkgs.

DESIGN PAPER

Van Raalte Co., Laconia, Liverpool, 1 cs.

GARNET PAPER

United Hardware & Tool Co., N. Amsterdam, Rotterdam, 24 cs.

STRAW BOARD

C. H. Powell & Co., Rotterdam, Rotterdam, 101 rolls.

STRAW PAPER

American Express Co., Chile Maru, Hamburg, 34 bls.

MISCELLANEOUS PAPER

Rohner, Gehrig & Co., A. Ballin, Hamburg, 10 cs.
International Forwarding Co., Stuttgart, Bremen, 14 cs.
Globe Shipping Co., Rotterdam, Rotterdam, 34 cs.
Houbigant, Inc., Majestic, Southampton, 13 cs.
Keller Dorian Paper Corp., Majestic, Southampton, 16 cs.
The Borregaard Co., Inc., Minnequa, Gothenburg, 1,207 rolls, 275 bls.
Crepe Kraft Co., Minnequa, Gothenburg, 23 bls., 50 rolls.
Arkell Safety Bag Co., Minnequa, Gothenburg, 64 rolls.
H. Reeve Angel & Co., Inc., Gripsholm, Gothenburg, 36 rolls, 33 bls.
C. K. MacAlpine & Co., Gripsholm, Gothenburg, 93 bls.
F. C. Strype, N. Amsterdam, Rotterdam, 5 cs.
Nepaco Paper Co., N. Amsterdam, Rotterdam, 12 cs.
Japan Paper Co., N. Amsterdam, Rotterdam, 7 cs.

RAGS, BAGGINGS, ETC.

Equitable Trust Co., A. Ballin, Hamburg, 66 bls. rags.
A. W. Fenton, Inc., A. Ballin, Hamburg, 223 bls. rags.
A. W. Fenton, Inc., Stuttgart, Bremen, 26 bls. rags.
E. Mayer, Stuttgart, Bremen, 3 bls. rags.
W. Schall & Co., Rotterdam, Rotterdam, 366 bls. bagging.
W. Schall & Co., Rotterdam, Rotterdam, 10 bls. rags.
Castle & Overton, Inc., Rotterdam, Rotterdam, 5 bls. bagging.
E. J. Keller Co., Inc., Hinnoy, ——, 23 bls. rags.
Fidelity Trust Co., Hinnoy, Barcelona, 97 bls. rags.
H. G. Lichtenstein, Hinnoy, Barcelona, 90 bls. rags.
F. Stern, Hinnoy, Barcelona, 90 bls. rags.
Chemical Bank & Trust Co., Hinnoy, Barcelona, 150 bls. rags.
Castle & Overton, Inc., Hinnoy, Barcelona, 235 bls. rags.
A. W. Fenton, Inc., Hinnoy, Valencia, 121 bls. rags.
W. Schall & Co., Hinnoy, Valencia, 60 bls. rags.
Castle & Overton, Inc., Anna C., Venice, 31 bls. rags.
A. W. Fenton, Inc., Minnequa, Stockholm, 11 bls. rags.
E. J. Keller Co., Inc., Chile Maru, ——, 50 bls. rags.
Chemical Bank & Trust Co., Chile Maru, Hamburg, 7 bls. rags.
1st Nat'l Bank of Boston, Caledonia, Glasgow, 16 bls. paper stock.
American Express Co., Caledonia, Glasgow, 12 bls. paper stock.
G. W. Sheldon & Co., Caledonia, Glasgow, 36 bls. rags.
V. Galaup, Exminster, Piraeus, 10 bls. rags.
V. Galaup, City of Harvard, Antwerp, 181 bls. rags.
D. M. Hicks, Inc., City of Harvard, Antwerp, 177 bls. flax waste.
Castle & Overton, Inc., City of Harvard, Antwerp, 240 bls. flax waste.
Castle & Overton, Inc., City of Harvard, Antwerp, 76 bls. rags.
B. D. Kaplan, City of Harvard, Antwerp, 7 bls. rags.
Royal Manfg. Co., City of Harvard, Antwerp, 195 bls. cotton waste.
American Union Bank, City of Harvard, Antwerp, 218 bls. rags.
E. J. Keller Co., Inc., City of Harvard, ——, 190 bls. flax waste.
E. J. Keller Co., Inc., City of Harvard, ——, 52 bls. thread waste.
G. W. Millar & Co., City of Harvard, Antwerp, 268 bls. rags.
Darmstadt, Scott & Courtney, City of Harvard, Antwerp, 38 bls. bagging.
Equitable Trust Co., City of Harvard, Antwerp, 123 bls. flax waste.
Schall & Co., City of Harvard, Antwerp, 116 bls. rags.
Schall & Co., City of Harvard, Antwerp, 471 bls. bagging.
Brown Bros. & Co., Francisco, Hull, 110 bls. yarn.
A. W. Fenton, Inc., Resolute, Hamburg, 25 bls. rags.
Banco Com'l Italiane Trust Co., Exford, Genoa, 37 bls. rags.
Banco Com'l Italiane Trust Co., Exford, Genoa, 49 bls. paper stock.
Guaranty Trust Co., Exford, Genoa, 82 bls. rags.
Castle & Overton, Inc., Anaconda, Rotterdam, 103 bls. bagging.
Castle & Overton, Inc., Anaconda, Rotterdam, 98 bls. old carpets.
V. Galaup, Schodack, Bordeaux, 78 bls. rags.
A. Hurst & Co., Schodack, Bordeaux, 50 bls. paper pulp.
V. Galaup, Schodack, St. Nazaire, 118 bls. rags.
Van Oppen & Co., N. Amsterdam, Rotterdam, 42 bls. rags.
E. J. Keller Co., Inc., N. Amsterdam, ——, 18 bls. rags.
E. J. Keller Co., Inc., Bellepline, ——, 65 bls. lace curtains.
Castle & Overton, Inc., London Merchant, England, 36 bls. rags.

(Continued on page 60)

SKANEATELES FALLS, N.Y.

NEW YORK STATE

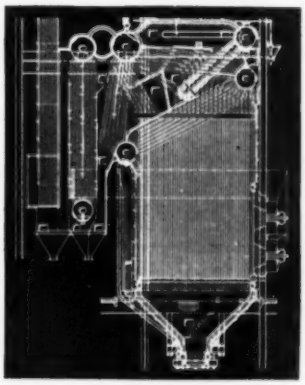
The Place Where GOOD FELTS Come From

WET FELTS for
TISSUE MACHINES

FREE RUNNING—LONG LIFE

THE WATERBURY FELT CO.

SKANEATELES FALLS N.Y.



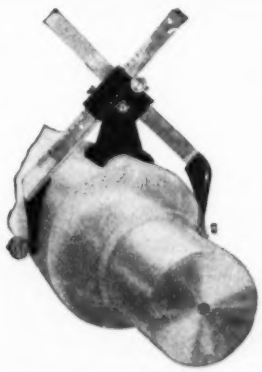
BADENHAUSEN STEAM GENERATING UNITS

installed in some of the largest pulp and paper mills in the United States and Canada

MAXIMUM STEAM
AT
HIGHEST EFFICIENCY
WITH
LEAST CAPITAL INVESTMENT and OPERATING COSTS

Result:—Enormous savings in cost of pulp and paper produced.

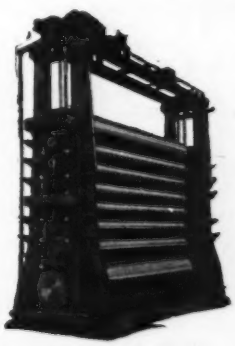
BADENHAUSEN CORPORATION
General Offices and Works
CORNWELLS HEIGHTS (PHILA.), PA.



LOBDELL

Chilled Iron Calender and Press Rolls
Automatic Roll Grinding Machines
Improved Micrometer Roll Calipers

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE.



Union Screen Plate Company

Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

UNION BRONZE

SCREEN PLATES FOR FLAT SCREENS
6 SLOTS—5 SLOTS—4½ SLOTS—4 SLOTS—PER INCH

Old Plates Reclosed and Re-cut to Accurate Gauge
Rolled Phosphor Bronze and Copper Plates for Rotary Screens

Sole Manufacturers of the Union Witham Screen Plate Vat and Fastener

Imports of Paper and Paper Stock

(*Continued from page 58*)

Castle & Overton, Inc., United States, Denmark, 23 bls. rags.
Castle & Overton, Inc., United States, Denmark, 60 bls. jute.
Castle & Overton, Inc., G. Washington, Bremen, 101 bls. waste.
Castle & Overton, Inc., Collamer, France, 116 bls. rags.

OLD ROPE

W. Steck & Co., Rotterdam, Rotterdam, 43 coils.
N. E. Berzen, J. S. Elcano, Vigo, 306 coils.
Brown Bros. & Co., J. S. Elcano, Vigo, 71 coils.
Castle & Overton, Inc., Caledonia, Glasgow, 48 coils.
Brown Bros. & Co., Francisco, Hull, 455 coils.
International Purchasing Co., Anaconda, Rotterdam, 26 bales.
Brown Bros. & Co., N. Amsterdam, Rotterdam, 204 bls.
E. J. Keller Co., Inc., N. Amsterdam, ——, 18 coils.

CASEIN

Equitable Trust Co., Chile Maru, Hamburg, 266 bags, 20,000 kilos.

CHINA CLAY

L. A. Salomon & Bros., Baltic, Liverpool, 100 casks.

WOOD PULP

Castle & Overton, Inc., A. Ballin, Hamburg, 1,436 bls. wood pulp, 215 tons.
M. Gottesman & Co., Inc., Anna C., Sebenico, 3,200 bls. wood pulp.
J. Anderson & Co., Minnequa, Sarpsborg, 1,410 bls. sulphite, 235 tons.
Perkins, Goodwin & Co., Minnequa, Obbola, 700 bls. sulphate, 100 tons.
Bulkley, Dunton & Co., Gripsholm, ——, 300 bls. wood pulp.
Perkins, Goodwin & Co., Gripsholm, Gothenburg, 127 bls. sulphite.
E. M. Sergeant & Co., Gripsholm, Gothenburg, 897 bls. dry soda pulp.
Johanson, Wales & Sparre, Inc., Gripsholm, Gothenburg, 299 bls. dry soda pulp.
Bulkley, Dunton & Co., N. Amsterdam, ——, 600 bls. wood pulp.

WOOD PULP WADDING

Birn & Wachenheim, Rotterdam, Rotterdam, 50 bls.

WOOD FLOUR

B. L. Soberski, Rotterdam, Rotterdam, 2,000 bags.
F. W. Schmalx Co., Inc., Rotterdam, Rotterdam, 500 bags.
State Chemical Co., Rotterdam, Rotterdam, 600 bags.
——, Gripsholm, Gothenburg, 400 bags.
The Burnet Co., N. Amsterdam, Rotterdam, 750 bags.
A. Kramer & Co., N. Amsterdam, Rotterdam, 400 bags.

BALTIMORE IMPORTS

WEEK ENDING AUGUST 24, 1929

National City Bank, Anna C., Venice, 577 bls. rags.
The Borregaard Co., Inc., Minnequa, Gothenburg, 156 rolls paper.
National City Bank, Exminster, Piraeus, 220 bls. rags.
Congoleum Nairn Co., Collamer, Havre, 46 bls. rags.
V. Galaup, Collamer, Havre, 185 bls. rags.
S. Shapiro & Son, Collamer, Dunkirk, 239 bls. rags.
Congoleum Nairn Co., Collamer, Dunkirk, 233 bls. rags.
Congoleum Nairn Co., Anaconda, Rotterdam, 1,281 bls. rags.
Congoleum Nairn Co., Anaconda, Rotterdam, 207 bls. bagging.
W. H. Masson, Anaconda, Rotterdam, 87 coils old rope.
National City Bank, Bellepline, Rotterdam, 1,257 bls. rags.
Congoleum Nairn Co., Schodack, Bordeaux, 1,614 bls. rags.
Congoleum Nairn Co., Schodack, St. Nazaire, 44 bls. rags.

GALVESTON IMPORTS

WEEK ENDING AUGUST 24, 1929

Hutchins Sealy & Co., Anna C., Venice, 164 bls. bagging.

NEW ORLEANS IMPORTS

WEEK ENDING AUGUST 24, 1929

C. B. Richard & Co., Anna C., Trieste, 144 bls. bagging.

BOSTON IMPORTS

WEEK ENDING AUGUST 24, 1929

M. Gottesman & Co., Inc., Anna C., Sebenico, 1,600 bls. wood pulp.
J. Andersen & Co., Inc., Anna C., Trieste, 1,050 bls. wood pulp.
Perkins, Goodwin & Co., Minnequa, Obbola, 5,600 bls. sulphate, 800 tons.
Pagel, Horton & Co., Inc., Minnequa, Domsjo, 3,000 bls. sulphite, 500 tons.
J. Andersen & Co., Inc., Minnequa, Sarpsborg, 1,950 bls. wood pulp, 325 tons.
J. Andersen & Co., Inc., Minnequa, Gothenburg, 1,000 bls. sulphite, 202 tons.
The Borregaard Co., Inc., Minnequa, Gothenburg, 500 bls. wood pulp, 101 tons.
Brown Bros. & Co., Minnequa, Gothenburg, 62 coils old rope.
Chase National Bank, Bellepline, Rotterdam, 106 bls. rags.
P. H. Graham, Bellepline, Rotterdam, 29 bls. rags.
Castle & Overton, Inc., Lorain, Germany, 65 bls. rags.

PORTLAND IMPORTS

WEEK ENDING AUGUST 24, 1929

Pagel, Horton & Co., Inc., Minnequa, Husum, 3,000 bls. sulphate, 500 tons.
Waterfalls Papermills, Minnequa, Gothenburg, 2,500 bls. wood pulp, 507 tons.
The Borregaard Co., Inc., Minnequa, Gothenburg, 1,000 bls. wood pulp, 203 tons.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 24, 1929

Fidelity Trust Co., Hinnoy, Barcelona, 34 bls. rags.
Chase National Bank, Hinnoy, Barcelona, 150 bls. rags.
E. Butterworth & Co., Inc., Hinnoy, Barcelona, 32 bls. rags.
Philadelphia Natl. Bank, Hinnoy, Barcelona, 422 bls. rags.
Brown Bros. & Co., Hinnoy, Barcelona, 79 bls. bagging.
Quaker City Paper Co., Minnequa, Gothenburg, 87 bls. paper.
The Borregaard Co., Inc., Minnequa, Gothenburg, 184 rolls paper.
Wolf Bros., Minnequa, Gothenburg, 48 rolls paper.
Paper Manfg. Co., Minnequa, Gothenburg, 54 rolls paper.
J. Andersen & Co., Minnequa, Sarpsborg, 450 bls. sulphite, 75 tons.
Guaranty Trust Co., Exford, Genoa, 42 bls. rags.
Congoleum Nairn Co., Exford, Genoa, 57 bls. rags.
Castle & Overton, Inc., Bellepline, Rotterdam, 100 bls. rags.
E. Mayer, Bellepline, Rotterdam, 31 bls. rags.
J. A. Steer & Co., Bellepline, Rotterdam, 23 bls. rags.
National City Bank, Bellepline, Rotterdam, 66 bls. rags.
Bank of The United States, Bellepline, Rotterdam, 44 bls. rags.
W. Schall & Co., Bellepline, Rotterdam, 91 bls. rags.
E. Butterworth & Co., Inc., Bellepline, Rotterdam, 118 bls. cottons.
E. J. Keller Co., Inc., Bellepline, ——, 178 bls. fustians.
D. I. Murphy, Schodack, St. Uazaire, 220 bls. rags.
Katzenstein & Keene, Inc., Schodack, St. Nazaire, 276 bls. rags.
Castle & Overton, Inc., Schodack, St. Nazaire, 72 bls. rags.
J. M. Jaffe, Schodack, St. Nazaire, 28 bls. rags.
V. Galaup, Schodack, St. Nazaire, 48 bls. rags.
Salomon Bros. & Co., Schodack, St. Nazaire, 201 bls. rags.
E. J. Keller Co., Inc., Schodack, ——, 185 bls. old rags.
S. Birkenstein & Son, Schodack, St. Nazaire, 109 bls. old rope.
Castle & Overton, Inc., Schodack, Bordeaux, 42 bls. rags.
Castle & Overton, Inc., Schodack, Bordeaux, 320 bls. rags.
W. Schall & Co., Schodack, Bordeaux, 102 bls. rags.
G. Mathes & Co., Schodack, Bordeaux, 82 bls. rags.
V. Galaup, Schodack, Bordeaux, 65 bls. rags.
D. I. Murphy, Schodack, Bordeaux, 93 bls. rags.
Katzenstein & Keene, Inc., Schodack, Bordeaux, 409 bls. rags.
Castle & Overton, Inc., Ammon, Germany, 512 bls. rags.
Castle & Overton, Inc., Ammon, Germany, 1,402 bls. wood pulp.
Castle & Overton, Inc., Havana Maru, Japan, 80 bls. rags.
Castle & Overton, Inc., Hannover, Germany, 180 bls. rags.

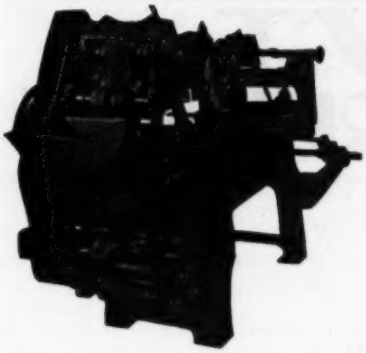
Installs Filtering System at Deferiet

[FROM OUR REGULAR CORRESPONDENT]

DEFERIET, N. Y., August 26, 1929.—The St. Regis Paper Company has started installation of a new filter system in its mill here under the supervision of John Warner, chief engineer of the company. It is estimated that the entire apparatus will cost in the neighborhood of $100,000. It is claimed that the new system will result in a finer quality of paper being produced. Work on the new apparatus has been under way for the past two weeks and will probably be completed early in September.

According to engineers of the firm, the waters of the Black River contain an unusual amount of vegetable coloring matter which in the process of making paper imparts a brown color to the fiber. It is also claimed that the color cannot be removed once it has been imparted and the officials of the firm decided that the only way to remedy the trouble was to remove the color from the water itself. The new apparatus is an intricate and very important piece of equipment which will turn the waters of the river to sparkling clearness besides improving the manufactured product.

The new filtering system will include 16 horizontal cylinders, eight feet in diameter and 25 feet long, filled with specially prepared sand and gravel. When the water has run through this filter every bit of coloring will have been removed and the water that goes into the making of the paper will be clearer than that taken from a sparkling spring. The water will be forced through the filters under 65 pounds pressure.



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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 28, 1929.

Demand for the various grades of paper was fairly persistent during the past week. An encouraging volume of inquiries for future business are being received and the outlook for the closing months of the year is bright. Sales forces of the leading paper organizations are planning a strenuous autumn campaign and are generally optimistic. Prices are holding to schedule, in most instances.

The news print market is exhibiting a strong undertone. Production at United States and Canadian mills is being maintained at around 80 per cent of capacity. Supplies are moving into consumption at a steady pace. Accumulations at the mills are not excessive. The price situation has been stabilized and no changes are anticipated for some time to come.

Trading in the paper market was fairly active during the past week. Production has been maintained in sufficient volume to take care of current requirements. Prices remain unchanged. Fine papers continue in good request at steady prices. Tissues are moving in routine manner. No radical changes were reported in the coarse paper market. Demand for wrapping paper is seasonal.

Mechanical Pulp

Some improvement was noticed in the ground wood market. Due to continued drought spot offerings of Canadian and United States mechanical pulp are decidedly limited. Prices on the various grades are somewhat firmer. No. 1 moist imported is now quoted at from $30 to $32, on dock. No. 1 domestic mechanical pulp is selling at from $26 to $30.

Chemical Pulp

Steadiness prevails in the chemical pulp market. Both foreign and domestic producers are well sold ahead. Imported easy bleaching sulphite is firmer and is now quoted at from $3.00 to $3.25. Bleached sulphite is in a sound position. No. 1 kraft is selling at from $2.40 to $2.64. Prices of other grades are generally holding to previously quoted levels and shading is infrequent.

Old Rope and Bagging

Business in the old rope market was mostly along routine lines during the past week. No further price changes were recorded. Mixed strings are moving in fairly satisfactory volume. There was a slightly better feeling in the bagging market. Scrap bagging is in seasonal request. Demand for roofing bagging is fairly active. Gunny bagging continues rather quiet.

Rags

Paper mill interest in the domestic rag market shows signs of improvement. Cotton cuttings are moving into consumption in good volume for the time of year. Roofing rags are in normal request. Mixed rags continue to display a steady trend. Prices of the various grades are generally being maintained at previously quoted levels. The foreign rag market continues rather quiet.

Waste Paper

The position of the paper stock market is practically unchanged. Business has been affected by the summer holidays but an expansion of trading is confidently looked for after Labor Day. The board mills are displaying some interest in the lower grades of waste paper. There is also a fair demand for soft white shavings. Book and ledger stocks are rather slow at present.

Twine

While business in the local twine market is only moderately active, the industry is considered to be in a sound position for the time of the year and an active autumn is predicted in most quarters. Inquiries for future business are fairly numerous. Prices of the various grades of twine are practically unchanged and there is little talk of concessions around.

Henry W. Stebbins Dead

WATERTOWN, N. Y., August 26, 1929.—Henry W. Stebbins, founder of the Stebbins Engineering Company and nationally known as a builder of chemical pulp mills, died at the Watertown Hospital this week following an extended illness. He was 72 years old. He had been suffering for several years from heart trouble and high blood pressure and his condition underwent a serious turn several days ago necessitating his removal to the local hospital. He was born in Whittington, England, in 1857, and at the age of fourteen he came to this country seeking his fortune.

He decided to locate at Holyoke, where he was successful in securing a position in one of the large paper mills. His keen foresight and rapid accumulation of the various details connected with paper manufacturing won him rapid promotion and it was not long before his services were in great demand. In 1882 he went to Appleton, Wis., with the Kimberly Paper Company, where he assisted in building the second pulp mill in this country at Monaco. He was made superintendent of this mill in which capacity he served until 1892 when he went to Carrolton, Ohio, as superintendent of the George H. Friend Paper Company. In 1894 he formed a partnership known as the Stebbins & Friend Company, which specialized in the construction of sulphite and pulp mills throughout the country. In 1898 he removed to Watertown, where he organized the Stebbins Engineering Company, which also specializes in paper mill construction. Augustus F. Richter, general manager of the firm, was one of his associates in this enterprise when it started operations.

The late George A. Stebbins, only son of the deceased mill man, became associated with his father following his graduation from college and was in a large degree responsible for the rapid development of the company. Mr. Stebbins retired from business in 1910 leaving his son to assume the management of the firm. Later when George A. Stebbins entered the banking business the reins of the firm were taken over by Mr. Richter. Throughout his entire life Mr. Stebbins was one of the leading figures in the development of the paper industry and it is a noteworthy fact that his firm constructed many of the leading mills in this country and Canada. His ability and authority in the paper industry was well appreciated and on numerous occasions he was called by the government as a consulting engineer when information was required in this line of business.

J. William Beckmann

ST. LOUIS, Mo., August 24, 1929.—J. William Beckmann died at his home in Webster Groves, Mo., August 19 at the age of 41. In 1902 he entered the employ of the Beacon Paper Company, St. Louis, as office boy. At the time of his death he occupied the position of sales manager of that concern. Mr. Beckmann was possessed of a most pleasing personality and enjoyed the confidence of a host of friends who feel deeply his passing.

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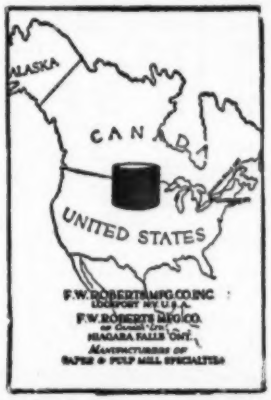

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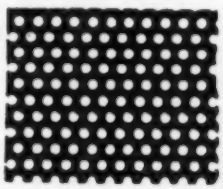
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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 28, 1929.

BLANC FIXE.—The blanc fixe market is practically unchanged. Demand for both the pulp and the powder is seasonal. Prices are steady and unaltered. The pulp is still quoted at from $42.50 to $45 per ton, in bulk, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Conditions in the bleaching powder market are fairly satisfactory. Shipments against contract are going forward in fair valume for the time of the year. Prices are holding to previously quoted levels. Bleaching powder is quoted at $2.00 to $2.35 per 100 pounds; in large drums, at works.

CASEIN.—The casein market was moderately active. Domestic casein is still selling at from 15 cents to 16 cents per pound. Argentine standard ground is offered at from 15½ cents to 16 cents per pound and finely ground at from 15¾ cents to 16¼ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Consumption of caustic soda is being maintained in good volume. The contract movement is well up to average. Prices are holding to schedule. Solid caustic soda is quoted at from $2.90 to $2.95, and the flake and the ground at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—The position of the china clay market is sound. Supplies are moving into consumption in satisfactory volume. Prices remain unaltered. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. Demand from the paper mills is persistent. Prices remain steady and unchanged. Chlorine is quoted at 3 cents per pound, in tanks, or multi-unit cars, at works, on standard contracts. The spot quotation ranges from 3¼ cents to 3½ cents per pound.

ROSIN.—The rosin market is exhibiting a strong undertone. The grades of gum rosin used in the paper mills are now quoted at from $8.70 to $8.75 per 280 pounds, in barrels, on dock. Wood rosin is still selling at from $6.75 to $7.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Offerings of salt cake continue decidedly limited. Demand from the mills is insistent and contract shipments have been heavy of late. Prices are firm. Salt cake is quoted at from $17 to $21 per ton, while chrome salt cake is still offered at from $14 to $15 per ton, in bulk, at works.

SODA ASH.—The soda ash market is practically unchanged. Supplies are moving into consumption in excellent volume for the time of year. Prices and holding previously quoted levels. Contract quotations on soda ash, in car lots, at works, are as follows: in bags, $1.32 ½; and in barrels, $1.55.

STARCH.—Demand for starch is fairly satisfactory at present. Contract shipments are going forward in routine manner. Prices are generally holding to schedule, without difficulty. Special paper making starch is quoted at $3.82 per 100 pounds, in bags, and at $3.99 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—The sulphate of alumina market is in a sound position. Supplies are moving into consumption in excellent volume. Prices remain steady and unaltered. Commercial grades are quoted at from $1.40 to $1.55, in bags, and at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—Production of sulphur is being maintained in sufficient volume to meet current needs. Sulphur is still quoted at $18 per ton, in lots of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was along routine lines. Prices are holding to previously quoted levels. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines, while imported talc is selling at from $18 to $20 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@	38.00
Bonds	9.00	@	53.25
Writings—			
Extra Superfine	14.00	@	32.00
Superfine	14.00	@	32.00
Tub sized	10.00	@	15.00
Engine sized	8.00	@	11.00
Book, Cased—			
S. & S. C.	6.00	@	7.50
M. F.	5.75	@	7.00
Coated and Enamel	7.50	@	12.00
Lithograph	7.50	@	12.00
Tissues—Per Ream—			
White No. 1	.75	@	1.00
Anti-Tarnish	1.35	@	1.90
Colored	1.00	@	2.00
White No. 2	.75	@	.80
Kraft	1.00	@	1.10
Manila	.75	@	.80
Kraft—			
No. 1 Domestic	6.25	@	6.50
No. 2 Domestic	5.25	@	5.50
Southern	4.25	@	4.50
Imported	6.50	@	7.00
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.00	@	4.50
Butchers	3.75	@	4.25
Fibre Papers—			
No. 1 Fibre	5.00	@	5.50
No. 2 Fibre	4.75	@	5.25
Common Bogus	2.75	@	3.00
Screenings	3.00	@	3.25
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs.	13.00	@	16.00
Bleached, basis 20 lbs.	15.00	@	16.00

(Delivered New York)

News, per ton—			
Rolls, contract	62.00	@	—
Rolls, spot	62.00	@	—
Sheets	67.00	@	—
Side Runs	47.00	@	52.00
Boards—per ton—			
News	37.50	@	40.00
Straw	52.50	@	55.00
Chip	35.00	@	37.50
Binders' Boards	65.00	@	70.00
Sgl. Mla. Ll. Chip	47.50	@	50.00
Wood Pulp	80.00	@	85.00
65 Test Jute Liner	52.50	@	—
85 Test Jute Liner	55.00	@	—

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	30.00	@	32.00
Dry	32.00	@	34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@	30.00
Screenings	15.00	@	20.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	3.75	@	4.40
Easy Bleaching	3.00	@	3.25
No. 1 strong unbleached	2.70	@	3.00
Mitscherlich unbleached	2.80	@	3.25
No. 2 strong unbleached	2.40	@	2.50
No. 1 Kraft	2.40	@	2.65
No. 2 Kraft	2.35	@	2.50
Sulphate—			
Bleached	3.60	@	3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—			
Bleached	3.40	@	4.75
Easy Bleaching Sulphite	2.65	@	3.00
News Sulphite	2.50	@	2.70
Mitscherlich	3.00	@	3.25
Kraft (Domestic)	2.50	@	3.30
Soda Bleached	3.10	@	3.25
Sulphate Screenings—			
Coarse	.75	@	.95
Refined	1.65	@	1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	11.00	@	11.50
New Whiite, No. 2	8.00	@	8.50
Silesias No. 1	7.50	@	8.00
New Unbleached	11.00	@	11.50
New Blue Prints	5.25	@	5.50
New Soft Blacks	5.25	@	5.75
Blue Overall	7.50	@	8.00
Washables	4.75	@	5.25
Fancy	5.75	@	6.25
Mixed Khaki Cuttings	4.75	@	5.25
Pink Corset Cuttings	8.00	@	8.50
O. D. Khaki Cuttings	5.15	@	5.75
Men's Corduroy	3.75	@	4.25
New Mixed Blacks	3.50	@	3.75

Old Rags

White, No. 1—			
Repacked	5.50	@	6.00
Miscellaneous	4.50	@	5.00
White, No. 2—			
Repacked	3.00	@	3.50
Miscellaneous	2.50	@	2.75
St. Soiled, White	2.00	@	2.15
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	2.00
Black Stockings	3.25	@	3.75
Roofing Rags—			
Cloth Strippings	1.70	@	1.80
No. 1	1.70	@	1.80
No. 2	1.55	@	1.65
No. 3	1.30	@	1.40
No. 4	1.25	@	1.35
No. 5A	.90	@	1.05

Foreign Rags

New Rags

New Dark Cuttings	2.50	@	3.00
New Mixed Cuttings	2.75	@	3.25
New Light Silesias	7.00	@	7.50
Light Flannelettes	7.50	@	8.00
Unbleached Cuttings	10.00	@	11.00
New White Cuttings	10.50	@	11.50
New Light Oxfords	7.00	@	7.50
New Light Prints	5.50	@	6.50

Old Rags

No. 1 White Linens	7.50	@	8.25
No. 2 White Linens	5.75	@	6.75
No. 3 White Linens	4.75	@	5.25
No. 4 White Linens	3.00	@	3.50
No. 1 White Cotton	5.50	@	6.50
No. 2 White Cotton	4.50	@	5.50
No. 3 White Cotton	3.00	@	4.00
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.75	@	3.25
Ord. Light Prints	2.25	@	2.50
Med. Light Prints	2.00	@	2.10
Dutch Blue Cottons	2.25	@	2.40
French Blue Linens	2.75	@	2.85
German Blue Linens	2.35	@	2.55
German Blue Cottons	2.15	@	2.25
Checks and Blues	1.85	@	2.00
Lindsay Garments	1.85	@	1.95
Dark Cottons	1.60	@	1.65
Old Shopperies	1.55	@	1.60
New Shopperies	1.50	@	1.60
French Blues	2.10	@	2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.60	@	1.70
Domestic	1.70	@	1.75
Wool Tares, light	1.60	@	1.65
Wool Tares, Heavy	1.60	@	1.70
Bright Bagging	1.60	@	1.70
Small Mixed Rope	1.25	@	1.40
Manila Rope—			
Foreign	4.25	@	4.40
Domestic	4.75	@	5.00
New Burlap Cut	2.75	@	3.00
Hessian Jute Threads—			
Foreign	3.50	@	4.00
Domestic	3.25	@	3.50

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, white, No. 1	3.25	@	3.50
Hard, white, No. 2	2.40	@	2.55
Soft, White, No. 1	2.50	@	2.60
White envelope cuttings	3.00	@	3.50
Flat Stock—			
Stitchless	1.50	@	1.60
Overissue Mag.	1.50	@	1.60
Solid Flat Book	1.40	@	1.50
Crumpled No. 1	1.00	@	1.10
Solid Book Ledger	2.00	@	2.10
Ledger Stock	1.40	@	1.50
New B. B. Chips	.65	@	.75
Manilas—			
New Env. Cut	2.40	@	2.60
New Cuttings	1.50	@	1.75
Extra No. 1 old	1.25	@	1.35
Print	.75	@	.80
Container	.57½	@	.60
Bogus Wrapper	.75	@	.85
Old Kraft Machine Compressed bales	1.90	@	2.00
News—			
No. 1 White News	1.65	@	1.75
Strictly Overissue	.75	@	.80
Strictly Folded	.60	@	.65
No. 1 Mixed Paper	.42½	@	.47½
Common Paper	.30	@	.35

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PAPER DEFINITIONS

CLASSIFICATION and DEFINITIONS of PAPER TERMS

By F. A. Curtis and Clarence J. West

The first Dictionary of Paper Terms ever compiled in this form and the only work of its kind available.

1460 PAPER TERMS

Drawn up by the Sectional Committee on Definitions

THIS BOOK should be in the hands of every paper manufacturer, every paper merchant, exporter, importer, every converter and every buyer of paper, as well as every producer of materials used in paper manufacture.

CONTENTS

In this list of definitions has been included, as far as possible—
(a) The basic paper terms used in the classification (identified by the classification numbers).
(b) The various commercial papers, the names of which have, in most instances, grown out of special uses to which the papers have been put.
(c) Various converted articles made from paper.
(d) Standard sizes of papers.
(e) Special finishes of papers.
(f) Miscellaneous paper terms.

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Twines
(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	4.25	@	4.50
No. 2 Kraft	.04	@	.04¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	42.50
Solid News	47.50	@	—
Solid News	40.00	@	45.00
Manila Lined Chip	50.00	@	55.00
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.20	@	2.25
White Env. Cuttings	2.40	@	2.50
No. 1 Soft Shavings	2.00	@	2.10
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.70	@	.75
Ledger & Writings	1.25	@	1.35
Solid Books	1.25	@	1.30
Blanks	1.40	@	1.50
Krafts	1.60	@	1.75
New Kraft Cuts	2.15	@	2.25
Manila Envelope Cuttings	1.65	@	1.75
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.75	@	.80
Folded News (overissue)	.80	@	.85
Old Newspapers—			
No. 1	.65	@	.70
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.60	@	.65
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.06	@	.40
Ledgers	.09	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.10	@	.20
Book, M. F.	.05½	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.09½	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.08	@	.09
Manila Sul., No. 1	.04	@	.05½
Manila No. 2	.03	@	.04
No. 2 Kraft	.06	@	.06½
No. 1 Kraft	.06½	@	.07
Common Bogus	.03½	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	75.00
News Board	35.00	@	40.00
Chip Board	32.00	@	40.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03½
Fancy	.05½	@	.06
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.80	@	1.90
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.85	@	1.90
Writing Paper	1.60	@	1.65
No. 1 Books, heavy	1.40	@	1.50
No. 2 Books, light	1.05	@	1.15
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common paper	.50	@	.55
No. 1 Mixed Paper	.60	@	.65
Straw Board, Chip	.60	@	.65
Binders Board, Chip	.60	@	.65
Overissue News	.80	@	.85
Old Newspaper	.50	@	.55

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2	2.00	@	2.25
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.65	@	1.75
Repacked	.02½	@	.04¾
No. 2	1.30	@	1.35
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.00	@	1.15
No. 5A	.75	@	.85
B	.65	@	.75
C	.65	@	.75

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.06¼	@	.06½
No. 2 Kraft	.04½	@	.05½
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls	.009		52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	47.50	@	50.00
Single White, Patent Coated Newsboard			
Bender	65.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.40	@	2.50
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.50	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	.90	@	1.00
White Blank News	1.50	@	1.60
Old Kraft	1.75	@	1.80
Print Manila	.80	@	.90
No. 1 Mixed Paper	.40	@	.45
Overissue News	.65	@	.70
Old Newspapers	.50	@	.52½
Box Board, Chip	.55	@	.60

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.50	@	1.75
Manila Rope—			
Foreign	—	@	4.50
Domestic	—	@	4.75
Transmission Rope	2.00	@	2.25
Mixed Strings	1.25	@	—
Jute Wool Strings	1.00	@	1.05
Jute Carpet Threads	1.00	@	1.10
Scrap Burlaps	1.37½	@	1.50
Scrap Sisal	1.80	@	2.00
Scrap Sisal for shredding	1.85	@	2.00
Wool Tares, heavy	1.60	@	—
New Burlap Cutting	1.90	@	2.00
Australian Wool Pouches	3.00	@	3.12½

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09½	@	.10
Silesias, No. 1	.06	@	.06¼
New Unbleached	.10	@	.10½
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.05	@	—
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.50	@	—
Miscellaneous	1.75	@	1.90
Black Stockings	—	@	4.00
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags
(F. o. b. Boston)

Dark Cottons	—	@	1.55
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.00	@	5.12½
New Checks & Blues	4.25	@	4.60
Old Fustians	1.90	@	—
Old Linsey Garments	1.85	@	1.90

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	60.00	@	—
Sulphite, bleached	77.00	@	—
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.85	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.10	@	.10¼
Fancy Shirt Cuttings	.05¼	@	—